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UNITED STATES TARIFF COMMISSION

DIFFERENTIAL

BETWEEN

RAW AND REFINED SUGAR

REPORT

TO

THE COMMITTEE ON WAYS AND MEANS

SEVENTY-FIRST CONGRESS

THIRD SESSION

Report No. 1

Second Series

Reprinted for the use of the Tariff Commission from the print of the Committee on Ways and Means

UNITED STATES

GOVERNMENT PRINTING OFFICE

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UNITED STATES TARIFF COMMISSION

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LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, December 12, 1930.

Hon. W. C. HAWLEY,
Chairman Committee on Ways and Means,
House of Representatives, Washington, D. C.

MY DEAR MR. CHAIRMAN: With further reference to your letter of June 27, 1930, addressed to Hon. Edgar B. Brossard, then chairman of this commission, I have the honor to inform you that the commission has examined the provisions referred to in your letter, and to inclose the result of its examination in the form of a report on the Differential Between Raw and Refined Sugar.

Very truly yours,

HENRY P. FLETCHER, *Chairman.*

863742

REPORT ON THE DIFFERENTIAL BETWEEN RAW AND REFINED SUGAR

By letter dated June 27, 1930, the Ways and Means Committee of the House of Representatives requested the Tariff Commission to obtain and report to the committee certain data with regard to the differential in the duty between raw and refined sugar. The request reads as follows:

> Under the provisions of the tariff act of 1930, sugar testing by the polariscope not above 75 sugar degrees is dutiable at 1.7125 cents per pound, and for each additional degree 0.0375 of 1 cent per pound. Under the tariff act of 1922, the rate was 1.24 cents per pound at 75°, and the rate of progression was 0.046 of 1 cent per pound.
>
> When these rates are worked out on the basis of Cuban sugar, it develops that the differential between 96° and 100° sugar under the act of 1922 was 0.1472 cents per pound against 0.12 cents per pound in the act of 1930, or a reduction of 2.72 cents per 100 pounds. It is contended that this differential affords no protection to the American refiners and that there should be a higher rate of progression on the sugar testing 97°, 98°, 99°, and 100°. It will be appreciated, therefore, if the commission will examine the provisions referred to and advise the committee what differential, in its opinion, would be necessary to afford the proper protection to the refining industry.

The differential in duty between refined sugar and raw sugar may involve two factors: (1) The amount necessary to compensate for the duty on the quantity of raw sugar required to make refined sugar; (2) the protective portion designed to equalize any difference between foreign and domestic costs of refining, cost of containers, and difference between the costs of transporting raw and refined sugar to the United States.

(1) The amount of differential necessary to compensate for the duty on raw sugar may be computed as follows:

Approximately 107 pounds of 96° raw sugar are required to produce 100 pounds of refined sugar, and as a by-product approximately 6 pounds of molasses are produced. On imports from Cuba under the act of 1930, there is a spread of 12 cents per 100 pounds between the duty on 96° raw sugar and that on 100° refined sugar. On the basis of the relationship of the quantities stated, the differential necessary to compensate for the duty on raw sugar, as shown in the accompanying table, amounts to 13.90 cents, instead of 12 cents per 100 pounds. In other words, using imports from Cuba, the present duty on refined sugar lacks 1.9 cents per 100 pounds (or 0.019 of 1 cent per pound) of being compensatory as against the 96° raw sugar. This is equal to 0.475 cent per 100 pounds for each degree between 96 and 100. In other words, to equalize this difference would necessitate raising the increment for each degree of sugar above 96° to $0.03475 per 100 pounds per degree instead of the present increment of $0.03 per 100 pounds per degree. On sugar paying the full duty, the corresponding change would be from an increment of $0.0375 per 100 pounds per degree to an increment of $0.0434.

(2) The protective portion of the duty on refining may be computed as follows:

On imports from Cuba under the act of 1922, the actual spread between 96° raw sugar and 100° refined sugar was 14.72 cents per 100 pounds. On the basis of the stated quantity of raw sugar required to produce 100 pounds of refined sugar and the yield of molasses, a spread of 12.25 cents per 100 pounds between 96° and 100° sugar would have been a sufficient compensatory differential. The difference between this amount and the actual spread is 2.47 cents per 100 pounds, which represents approximately the extent of protection to the refiner under the act of 1922.

If the differential in the act of 1930 had been made to give the same degree of protection to the refiners as that in the act of 1922, the differential in the Cuban sugar, instead of being $0.03 per 100 pounds per degree, would have been $0.0410 per degree, or a total of $0.164 per 100 pounds between Cuban sugar of 96° and 100°. The corresponding increment on sugar paying the full duty instead of being $0.0375 per 100 pounds per degree would have been $0.0512, which is equivalent to a differential of $0.2050 per 100 pounds as between full-duty sugar of 96° and 100°.

The following table shows the basic data on which the figures given are calculated:

Analysis of the differential in duty on imports from Cuba, on 96° raw sugar and on 100° refined sugar under the tariff acts of 1922 and 1930

	1922	1930
Duty on 100 pounds 100° refined sugar	$1.9120	$2.1200
Duty on 100 pounds 96° raw sugar	1.7648	2.0000
Spread between 100 pounds 96° raw and 100° refined	.1472	.1200
Duty on additional 7 pounds 96° lost in refining	.1235	.1400
Credit for duty on 6 pounds of molasses [1]	.0010	.0010
Compensatory duty necessary to offset duty on 96° raw sugar	.1225	.1390
Protective portion of duty	+.0247	−.0190

[1] Molasses imported as molasses.

The commission does not possess adequate information to determine what, if any, differential in addition to that necessary to compensate for raw sugar is necessary on refined sugar in order to equalize costs of refining as between the United States and foreign countries. To obtain this information would entail an extensive investigation, not only into the costs of the refining process but also into the costs of containers and the relative costs of transporting raw sugar and refined sugar from Cuba and other countries to the United States.

Among points which have a bearing upon the relative position of Cuban refiners and American refiners two may be mentioned, although no evidence as to the extent of their influence is available.

(*a*) Some of the Cuban refineries produce their refined sugar by a continuous process. Where this is the practice, the sugar is not ordinarily crystallized in raw form, but is taken into the refining process in liquid form. To this extent there might be a saving to the Cuban refiners in operating costs as well as the elimination of the cost of bags in which raw sugar is purchased by the American refiners.

(*b*) The freight rate from Cuba to the United States on refined sugar is higher per 100 pounds than on raw sugar. The rates on both products vary more or less from time to time and the amount of the differential per pound likewise varies.

At the time of the passage of the act of 1922, there were practically no domestic imports of refined sugar. Since that time a sugar-refining industry has developed in Cuba, and, as shown in the following table, refined sugar has been imported in substantial and increasing quantities:

Refined cane sugar: Imports for consumption, United States, 1925–1930 [1]

[100° centrifugal]

Year	Cuban	Full duty	Total
	Pounds	*Pounds*	*Pounds*
1925	2,647,149	8,186,004	10,833,153
1926	116,164,996	7,480,488	123,645,484
1927	177,410,837	1,921,254	179,332,091
1928	373,452,431	11,036,270	384,488,701
1929	511,931,377	4,077,367	516,008,744
1930 (act of 1922) [2]	303,178,083	10,244,889	313,422,972
1930 (act of 1930) [3]	103,354,864	503,900	103,858,764
Total for 1930 (up to and including Sept. 30)	406,532,947	10,748,789	417,281,736

[1] From Foreign Commerce and Navigation of the United States.
[2] From Jan. 1 to June 17, 1930. From figures compiled by Statistical Division of the United States Tariff Commission.
[3] From June 18 to Sept. 30, 1930. From figures compiled by Statistical Division of the United States Tariff Commission.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

DECEMBER 12, 1930.

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UNITED STATES TARIFF COMMISSION

THE ANTHRACITE COAL INDUSTRY OF SOVIET RUSSIA

REPORT
TO
THE COMMITTEE ON WAYS AND MEANS
SEVENTY-FIRST CONGRESS
THIRD SESSION

Report No. 2
Second Series

Reprinted for the use of the Tariff Commission from the print of the Committee on Ways and Means

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CONTENTS

		Page
	Letter of transmittal	v
	Introduction and summary	1
I.	Recruiting of laborers for the Donetz coal fields	2
II.	Laws and regulations regarding Russian laborers generally	3
III.	Trade of the United States in anthracite coal, with special reference to Russia	4
IV.	Reserves and production of coal in Soviet Russia	6
V.	Cost of production of coal in the Donetz Basin	7
VI.	Quantity and value of anthracite coal produced in the Donetz Basin	8
VII.	Ocean freight rates on anthracite coal from Soviet Russia	9
VIII.	Technical conditions of Donetz coal mines	9
IX.	Conditions of labor in Donetz coal mines	11
X.	Social conditions	14

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, January 19, 1931.

Hon. W. C. HAWLEY,
Chairman Committee on Ways and Means,
House of Representatives, Washington, D. C.

MY DEAR MR. CHAIRMAN: Your letter of June 30, 1930, requests the Tariff Commission to obtain information in regard to the coal industry of Russia, with special reference to the provisions of section 307 of the tariff act of 1930, which prohibits the importation of commodities produced by convict, forced, or indentured labor under penal sanctions.

Because of existing conditions the investigation has been confined to an examination of published reports and records available in Washington in regard to labor and other conditions in the coal industry of Soviet Russia.

The information which the commission has been able to obtain is submitted in the attached memorandum.

Very truly yours,

HENRY P. FLETCHER, *Chairman.*

THE ANTHRACITE COAL INDUSTRY OF SOVIET RUSSIA

INTRODUCTION AND SUMMARY

Soviet Russia in recent years has entered as a competitor in the world coal markets. Her total exports of coal amounted to 726,000 tons in 1928–29. Russian exports of coal to the United States consist of anthracite from the Donetz coal fields near the Black Sea. A small amount of anthracite coal has regularly been imported into the United States in recent years—mainly from the United Kingdom. During the 7-year period from 1922 to 1928 the average annual importation of anthracite coal was 336,000 tons—none of which came from Russia. The United States production of anthracite is in the neighborhood of seventy-five to eighty million tons per year.

The importation of Russian anthracite into the United States began in 1929, and amounted in that year to 113,170 tons, valued at $737,176. In the first 10 months of 1930, similar imports were 147,139 tons, valued at $1,039,570. Nearly all the Russian anthracite enters through the customs districts of Maine, New Hampshire, Massachusetts, and Rhode Island. The ocean-freight rate to New England seaports upon Russian coal is now about $3.15 per ton. The rail rate upon Pennsylvania anthracite to Boston is $4.28 and is higher to northern New England points.

Any close comparison of the cost of production or the prices of domestic and soviet coal is impracticable, because of the uncertain value of the Russian currency in terms of the dollar. The Soviet Government completed in 1924 a reorganization of the Russian currency on a gold basis and until 1926 the ruble might have been converted at par (51.46 cents). From 1926 on, however, the soviet ruble has fallen below par in exchange for American and other stable currencies. The par value of the ruble can, therefore, not now be used for conversion. Such actual exchange values of the ruble as are available are also not a correct criterion of its gold value. The ruble is not bought and sold on the regular public exchanges of European countries or of the United States, and on the private or so-called Black exchanges in some countries bordering on Russia, its value is affected by the fact that its reentry into Russia is forbidden by soviet law.

As to the question whether in the production of coal for export the Soviet Government employs forced labor, the Tariff Commission has necessarily been confined to an examination of soviet labor laws and regulations available in Washington. As a result of this examination, it has been found that measures have recently been taken for the recruiting of workers for the coal mines in the Donetz Basin. It has also been ascertained that the Soviet Government has adopted a number of laws and other measures regarding laborers who leave

their employment. Moreover, applicants for employment are subject to certain disabilities if they refuse positions offered. The various measures adopted would presumably have a different significance in a society where industry and trade are mainly in private hands from that which they possess in Soviet Russia where the great bulk of the manufacturing, mining, and transportation industries is in the hands of the Government.

None of the laws or regulations examined contains any specific provision to prevent a worker in the Government industries from returning to the farm or seeking employment in such private enterprises as may exist.

Bearing upon the question of possible Russian exports of anthracite coal, it may be pointed out that Russian industries, according to soviet publications, are now suffering from a severe shortage of coal. The soviet program of industrial expansion calls for a much larger home consumption of coal in the near future. Because of the distant location of Siberian reserves of coal, the demands upon the Donetz reserves will be very heavy. According to the soviet press, the expansion of coal production may be unequal to the industrial requirements of Soviet Russia. Even now the productive resources of the Donetz Basin appear to be taxed beyond their present capacity. The future development of coal exportation by Soviet Russia, however, can not be foretold.

I. Recruiting of Laborers for the Donetz Coal Fields

On September 7, 1930, the official daily of the Supreme Council of People's Economy of the Soviet Union contained an announcement with respect to recruiting several thousand workers for the Donetz coal fields. The translation of this article follows.

RECRUITING OF WORKERS FOR COAL MINES IN SOVIET RUSSIA (U. S. S. R.)[1]

In accordance with the direction of the Council of Labor and Defense (STO) of the Soviet Union to recruit workers for the Donbass, the Commissars of Labor of the Soviet Union (U. S. S. R.) and of Soviet Russia (R. S. F. S. R.), the Supreme Council of People's Economy of the Soviet Union (U. S. S. R.), the Center of Collective Husbandry, the Central Committee of Miners and Agricultural Workers, the Central Committee of the All-Union Lenin Communist Union of Youth (V. L. K. S. O.), and the united "Ugol" (united Soviet trust in charge of coal mining in the Donetz Basin) have informed the respective organizations under them of the necessity of recruiting 55,000 workers for the coal mines of the Donetz Basin ("Donbass") and of the delivery of these workers at the mines not later than October 1, 1930. Out of the total number 5,000 must be farm hands, 20,000 members of the Communist Youth, and 20,000 "Kolkhozniks" (farm hands from the collective farms).

For the prompt fulfillment of this plan of recruiting and delivering workers at the coal mines the labor offices are responsible. Without delay all People's Commissars of Labor of the Union and Autonomous Republics and also all provincial and district labor offices, together with the offices of the "kolkhoz" (collective farm) system, of the "konsomol" (Communist youth organizations), of the unions of mine workers and agricultural workers must prepare republican and provincial plans of recruiting workers.

To assist in recruiting and sending workers to the Donbass the united "Ugol" has placed 100 workers at the disposal of the labor offices.

The united "Ugol" and the offices of the mines must immediately take all necessary measures to receive and place the recruited workers, paying special attention to the provision of adequate housing.

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[1] Translation of article in Za Industrializatsiu (For Industrialization) Sept. 7, 1930, p. 1. (Official daily of the Supreme Council of People's Economy of the Soviet Union (U. S. S. R.)).

The labor offices and all other organizations taking part in the recruiting of workers must expedite the delivery and placement of workers. Soviet public opinion should be directed to the recruiting and delivery of workers to the Donbass.

For the fulfillment of the plan the following are personally responsible: People's Commissars of Labor of the United and Autonomous Republics, directors of the provincial sections of labor offices, chairmen of the "Kolkhoz" (collective farms) centers and Kolkhoz union, chairmen of the union of miners and of agricultural forestry workers, secretaries of the provincial and district communist organizations of the All-Union Lenin Communist Union of Youth, and the managers of the mines.

The workers brought to the Donbass shall receive transportation expenses and 2.50 rubles for food a day from the day of their recruiting up to the day of beginning work in the coal mines.

The workers brought to the mining establishments must work in the mines not less than six months, and when qualified, not less than one year. If the worker leaves voluntarily, the administration may exact from him the transportation expenses from the place of recruiting to the place of work and also per diem payments advanced to him. If the recruited worker is a farm hand, "kolkhoznik" (farm hand from a collective farm), or a member of the communist youth organization, and works in the mines of the Ugol one year and fulfills the work days and norms of output stipulated in the collective agreement, the enterprise pays him a lump sum equal to the average value of his output of 12 days.

II. Laws and Regulations Regarding Russian Laborers Generally

When the order for the recruiting of coal miners was issued, the Soviet Government was in the process of formulating more general measures against labor turnover, to apply to the whole country.

Regulations were promulgated on September 25, 1930, an account of which is given in Russian Economic Notes, as follows:[2]

A measure which will tend to prevent the shifting of labor is the resolution passed recently by the Commissariat for Labor, the Supreme Economic Council, and the All-Union Central Council of Cooperative Societies, according to which the administration of factories and other economic organizations is to enter in the pay books of individual workmen the reasons for their dismissal. These notations must cover all possible reasons, such as: By workman's own request, termination of contract, inability to do the work, absenteeism, etc. If, owing to the short duration of employment the workmen do not have a pay book, the reasons for leaving the job are to be stated on a special memorandum that is to be handed to the man when he leaves. The men in charge of employment are to interview the men who express a desire to leave, and if the complaints are reasonable, the factory administration should comply with the workmen's requests so as to retain them. The employment bureaus are forbidden to register applicants for jobs who do not have a statement of the reasons for leaving their last job. Persons who have left on their own initiative, or have been discharged for breach of labor discipline are to be registered by the labor bureaus on special lists; these men are not to be given unemployment doles and are to have the last choice in obtaining jobs. The economic organizations to which these workmen are assigned should be specially notified that the men sent to them have been discharged for breach of labor discipline or are known to have quit their jobs without approved reasons. The personnel departments of the economic organizations are instructed to act in the same way as the employment bureaus.

A decree promulgated by the Labor Commissariat of the Soviet Union on October 11, 1930, reads in part as follows:[3]

1. In view of the insufficiency of labor in all branches of the national economy, the State Insurance Department henceforth will give no unemployment pay except in cases of physical disability.

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[2] Russian Economic Notes No. 104, Oct. 31, 1930, p. 4, translated from "Za Industrializatsiu" (Sept. 25, 1930). Russian Economic Notes consists of translations and digests of publications of the Soviet Government and of the semiofficial Russian press. Russian Economic Notes are prepared by the Russian Division in the United States Department of Commerce.

[3] A decree of the Labor Commissariat of the Soviet Union, October 11, 1930. Izvestia (Organ of the Central Executive Committee of the Soviets of the U. S. S. R., and of the All-Russian Central Executive Committee of Soviets), Oct. 11, 1930, p. 4.

2. State labor exchanges and employment agencies must immediately take measures for putting the unemployed to work—and first of all those hitherto enjoying the right to unemployment insurance pay.
3. Unemployed persons must accept work not only in accordance with their own specialty, but also, if necessary, work requiring no special qualification.
4. No reasons for refusal of such proposed work will be accepted, except illness, supported by a medical certificate. Refusal to accept work will involve removal of such persons' names from labor exchange files.

The labor exchanges are the offices through which employment is secured in the state industries. On the date that the above decree was issued, the Workers' Gazette, a Russian paper, stated that to be stricken from labor exchange files would imply expulsion from trade unions with the probable loss of civic rights and the certain loss of accident or illness insurance.[4]

On October 20, 1930, the central committee of the Communist Party issued a resolution which states that:

Skilled workmen and specialists employed in less important branches of the national economy, factories or administrative organizations, can be removed by the request of the Commissariat for Labor and sent to more important industries, particularly, coal mining, iron, and steel, transport and large construction undertakings, regardless of where they are located.

This resolution also says that slackers and floaters are to be deprived of the right to work in industrial undertakings for six months.[5]

III. Trade of the United States in Anthracite Coal, with Special Reference to Russia

The coal imported from Soviet Russia into the United States consists of anthracite. For a number of years anthracite has been imported into this country, but the Russian imports began only in 1929. The following table shows the imports for consumption of anthracite from all countries since 1922.

Anthracite coal—Imports for consumption, 1922 to October, 1930[1]

Calendar year	Quantity	Value	Value per ton
	Long tons		
1922	208,507	$1,502,192.00	$7.20
1923	268,179	2,114,080.00	7.88
1924	105,280	880,634.00	8.36
1925	341,870	3,212,505.00	9.40
1926	726,746	6,996,739.00	9.63
1927	106,277	837,033.00	7.88
1928	343,488	2,591,641.00	7.54
1929	434,975	3,328,838.00	7.65
1930 (10 months)	[2] 499,499	[2] 3,632,996.00	7.27

[1] U. S. Department of Commerce, Foreign Commerce and Navigation of the United States.
[2] General imports.

Prior to 1929, practically all the imports of anthracite came from the United Kingdom.

Imports of anthracite from Russia amounted to 113,170 tons in 1929 and to 147,139 tons in the first 10 months of 1930.[6]

The following table gives the importations of coal from Russia by customs districts in 1929 and for the first 10 months of 1930.

[4] Walter Duranty in New York Times, Oct. 12, 1930, Sec. I, p. 9.
[5] Pravda, Oct. 22, 1930.
[6] Department of Commerce statistics.

Imports for consumption of anthracite coal from Russia by customs districts, 1929, and first 10 months of 1930 [1]

Customs district	1929		First 10 months of 1930	
	Long tons	Value	Long tons	Value
Maine and New Hampshire	14,660	$90,133	24,379	$156,409
Massachusetts	72,155	472,775	95,383	697,091
Rhode Island	26,355	174,268	23,716	164,535
Connecticut	----------	----------	3,659	21,520
New York	----------	----------	2	15
Total	113,170	737,176	147,139	1,039,570

[1] Data furnished by U. S. Department of Commerce.

It will be noted that practically all the imports of Russian anthracite in 1929 and 1930 entered New England customs districts. New England was also the predominant market for imported anthracite from all countries in 1927 and 1928.

The following table shows the imports of anthracite from Soviet Russia by months in 1929 and the first 10 months of 1930:

Imports for consumption of anthracite from Soviet Russia, by months, 1929 and 1930

Month	1929		1930	
	Long tons	Value	Long tons	Value
January	164	$816	10,975	$70,972
February	17,089	101,579	45,972	303,197
March	2,890	16,935	12,534	73,939
April	2,889	16,930	7,098	59,618
May	----------	----------	6,618	49,772
June	10,397	68,480	18,005	135,880
July	11,716	78,534	15,734	111,795
August	4,304	30,045	12,398	96,580
September	11,346	79,049	5,724	43,008
October	11,938	80,078	12,081	94,809
November	26,621	173,640	----------	----------
December	13,816	91,088	----------	----------
Total	113,170	737,176	----------	----------

United States exports of anthracite have been as follows since 1922:

Exports of anthracite from the United States, 1922–1929 [1]

[Tons]

Year	Canada and Mexico	Other countries (seaborne)	Total	Year	Canada and Mexico	Other countries (seaborne)	Total
1922	2,579,000	70,000	2,649,000	1926	3,947,000	83,000	4,030,000
1923	4,993,000	97,000	5,090,000	1927	3,248,000	78,000	3,326,000
1924	3,932,000	85,000	4,017,000	1928	3,298,000	38,000	3,336,000
1925	3,098,000	81,000	3,179,000	1929	3,378,000	28,000	3,406,000

[1] U. S. Department of Commerce, statistics section, coal division, mimeographed report, Nov. 29, 1930.

Total exports of coal from Russia amounted to 388,682 tons in 1927–28, and to 726,443 tons in 1928–29.[7] These include shipments to all countries.

[7] Soviet Union Year Book, 1930, p. 311.

IV. Reserves and Production of Coal in Soviet Russia

1. *Reserves.*—The total Russian coal reserves are estimated to be about 475,000,000,000 tons, 83 per cent of which are in Asiatic Russia.[8] The Donetz Basin, situated in the Ukraine, and not far from the Black Sea, is the most important developed Russian coal field. It is the source of the anthracite coal exported to the United States.[9] The Donetz coal is in one large field, which extends from west to east for a distance of 300 miles. It is considered the largest coal field in Europe, but it is split up into several areas, with varying qualities of coal. Roughly, the flaming coals are at the western end of the field, the coking and semianthracite coals in the center, and the anthracite in the east, though coking coals are also found toward the northeast corner. Throughout the Donetz field the seams vary much in thickness; the bulk of the output is from seams of 21 to 35 inches; but seams of 5 feet are moderately common, and the maximum thickness is 7 feet.[10]

The Donetz coal reserves are estimated at 68,167,000,000 tons, of which 39,599,000,000 tons are classed as anthracite and semianthracite and 28,568,000,000 as bituminous.[11] These anthracite deposits are over twice as large as the remaining anthracite coal reserves of Pennsylvania, which amount to about 15,000,000,000 tons, about two-thirds of the original deposits.[12]

2. *Production.*—The following table shows the production of coal in the Soviet Union for recent years and a comparative figure of the output in 1913 in the present territory of the union.

Output of coal in Soviet Union, by principal mining areas [1]

[Thousands of metric tons]

Coal field	1913	1925–26	1926–27	1927–28	1928–29	1929–30
Donetz	24,900	19,113	24,026	26,690	30,900	[2] 36,186
Moscow	300	920	971	1,178	1,308	([3])
Urals	1,185	1,600	1,866	2,216	2,390	([3])
Kuznetsk	760	1,600	2,566	3,024	3,008	([3])
Cheremkhov	463	484	655	817	1,050	([3])
Others	1,169	704	1,846	2,375	1,914	([3])
Total	28,777	24,421	31,930	36,300	40,570	([3])

[1] Santalov and Segal, Soviet Union Yearbook, 1930, p. 145.
[2] U. S. Department of Commerce, Russian Economic Notes, Dec. 5, 1930, p. 1.
[3] Figures not yet available.

The production of coal in the Soviet Union was much greater in 1928–29 than in 1913. However, in 1913, the area that is now the Soviet Union used to a large extent coal from what is now Polish territory. The Soviet Union now depends on itself for coal. There was "an acute shortage of fuel" in the Soviet Union in 1929–30. "On the whole, the fuel situation in Soviet industries is becoming strained and the reserves in factories as well as in transport (railways, steamship lines) are becoming more meagre." [13] The per capita

[8] Russian Geological Commission (Zapasy Ugleii *v.* S. S. S. R.), Leningrad, 1927.
[9] Statement of coal division of the U. S. Department of Commerce.
[10] Great Britain, Imperial Mineral Resources Bureau, The Mineral Industry of the British Empire and Foreign Countries, Part III, Coal, Coke, and By-Products, London, 1922, p. 81.
[11] U. S. S. R., Zapasy Ugleii *v.* S. S. S. R., Leningrad, 1927, p. 6.
[12] Report of the U. S. Coal Commission, 1925, Part I, p. 36.
[13] Pravda, Oct. 2, 1930.

production of coal in the Soviet Union in 1928–29 was about one-quarter of a ton, compared with about 5 tons in the United States.

The production of coal in the Donetz Basin in 1929–30 was 36,000,000 tons, while the official plan called for a production of 40,000,000 tons.[14] It may be noted, however, that only the smaller, though an increasing, part of the output of the Donetz Basin consists of anthracite, the output of anthracite in recent years being as follows:

Russian production of anthracite, 1917 to 1928–29 [15]

	Thousands of tons
1917	4, 997
1918	2, 075
1919	1, 487
1920	1, 369
1921	1, 528
1922–23	1, 723
1923–24	2, 042
1924–25	3, 513
1925–26	3, 307
1926–27	5, 411
1927–28	7, 732. 9
1928–29	9, 338. 7

Efforts are being made to develop new mines, but many difficulties have arisen. An insufficiency of engineers, as well as of skilled and common labor, exists. The largest Russian coal fields are in Siberia too distant from Russian industrial centers for economical exploitation. The opening of new mines has been delayed.[16]

V. Cost of Production of Coal in the Donetz Basin

The Russian statisticians devote much attention to cost of production studies, and such studies of coal are facilitated by the unified governmental control of coal districts, detailed reports being required by the Russian administration. The rapid expansion of the coal industry, accompanied by a certain amount of confusion, recognized by soviet publications, has probably impaired the accuracy of the statistics. The cost figures published by the Soviet Government are the only ones available. According to them the cost of producing a ton of coal by the Donetz coal "trust" was 10.54 rubles in 1927–28 (the fiscal year ended September 30, 1928) and 10.41 rubles in 1928–29.[17]

In the last quarter of the year 1929–30 costs of production increased owing to decreased efficiency of coal-cutting machines, and the disorganization of labor.[18]

Wages were 51 per cent of the costs of production in 1927–28 and 54 per cent of the cost in the following year. The costs apparently include the usual items. A charge is made for "rent," but it is not known exactly what this is.

Russian costs expressed in rubles can not at the present time (1930) be stated in gold values.[19] The above figures have therefore only a limited significance for international comparisons.

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[14] Russian Economic Notes, Dec. 5, 1930, p. 1.

[15] From 1917 to 1926–27, U. S. S. R., 10 Years of Soviet Power in Figures, Moscow, 1927, pp. 244–245; last 2 years, U. S. S. R., Statisticheskii Biulleten, June, 1929, p. 14, October, 1929, p. 18.

[16] Cf. Department of Commerce, Russian Economic Notes, July 18, 1930, pp. 3–6; Sept. 12, 1930, pp. 1–2; Nov. 7, 1930, p. 2.

[17] Gorni Zhurnal (The Official Soviet Mining Journal), Oct., 1929, p. 1761.

[18] Russian Economic Notes, Sept. 12, 1930, p. 2. Translation of an article from Izvestia, Aug. 17, 1930.

[19] See Introduction.

VI. Quantity and Value of Anthracite Coal Produced in the Donetz Basin

The Soviet Government publishes statistics of the monthly production of anthracite coal in the Donetz Basin and gives the value of this production at what it calls the current price. From these statistics can be calculated the current value in rubles per ton placed upon anthracite by the Soviet Government.

The following table gives these statistics from February, 1929, to February, 1930. Later statistics are not at present available.

Anthracite coal produced in the Donetz Basin—Quantity, value, and value per ton [1]

	Metric tons	Value in 1,000 rubles	Value per ton rubles
1929			
February	762,425	7,390	9.69
March	857,258	8,045	9.385
April	833,110	7,822	9.389
June [2]	780,261	7,310	9.639
July	823,424	7,939	9.641
August	801,341	7,964	9.938
September	794,375	7,704	9.698
October	953,864	9,273	9.72
November	920,633	9,115	9.90
December	1,021,462	9,935	9.73
1930			
January	1,070,286	10,342	9.66
February	1,011,908	9,576	9.46
Total	10,630,347	102,415	9.63

[1] U. S. S. R., Ezhemesiachnii Statisticheskii Biulleten, February, 1929, to February, 1930.
[2] Statistics for May not available.

According to the above figures the average domestic price of Russian anthracite for the 12-month period shown was 9.63 rubles per ton.[20] It is presumed that this was the price at the mine although no statement is made on this point by the soviet publication from which the figures were obtained.

The average price at which Russian anthracite was imported to the United States during the same period is shown in the following table:

Anthracite coal—Imports for consumption from Soviet Russia [a]

	Long tons	Value	Value per ton
1929			
February	17,089	$101,579	$5.944
March	2,890	16,935	5.860
April	2,889	16,930	5.860
June	10,397	68,480	6.587
July	11,716	78,534	6.703
August	4,304	30,045	6.981
September	11,346	79,049	6.967
October	11,938	80,078	6.808
November	26,621	173,640	6.523
December	13,816	91,088	6.593
1930			
January	10,975	70,972	6.466
February	45,972	303,197	6.595
Total	169,953	1,110,527	6.53

[a] No imports from Soviet Russia in Asia. Data furnished by U. S. Department of Commerce.

[20] See Introduction as to ruble conversion.

VII. Ocean Freight Rates on Anthracite Coal from Soviet Russia

The freight costs to transport Russian anthracite from its principal point of export (Mariupol) to the North Atlantic coast of the United States are given by soviet publications as follows (per ton):[21]

	Minimum	Maximum
1927–28	$3.41	$3.41
1928–29	3.28	4.02
October, 1928–December, 1929	4.06	4.14

According to a statement issued by the coal division of the Department of Commerce, the ocean freight rate on Donetz anthracite to United States ports north of Hatteras ranged from about $3.50 to $4 through the early part of 1930. A bulletin called "The International Coal Trade Situation," issued by the United States Department of Commerce quotes later ocean freight rates on Donetz anthracite to ports north of Hatteras as follows (dates shown are dates of the bulletin):

Aug. 18, 1930	$3.10–$3.16
Sept. 16, 1930 (a particular cargo)	3.20
Nov. 15, 1930 (a particular cargo)	3.15

VIII. Technical Conditions of Donetz Coal Mines

In 1929 a commission composed of representatives of the Soviet Government, labor unions, and other interested Russian groups made an investigation of the technical conditions of the Donetz coal mines. The report was published in the Russian official mining journal.[21] The following account is an abstract of parts of this report, and also includes information published (apparently under the auspices of the Soviet Government) in a monograph [22] by an experienced Russian observer.

1. *Machine mining.*—A very great effort has been made to introduce machine mining in the Donetz Basin. Machine production increased from 200,000 tons in 1922–23 to 5,515,000 tons in 1927–28,[22] and to 7,620,000 tons in 1928–29. The percentage of Donetz Basin coal mined by machines has been as follows:

1927–28 [22]	22.9
1928–29 [23]	30.2
1929–30 [24]	39.8

The following table shows, up to 1927–28, the number of coal-cutting machines in the Donetz Basin, and the average annual output per machine.

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[21] Quoted by Russian Economic Notes, Dec. 27, 1929, p. 3. Converted from English currency at par or $4.8665 to the pound sterling.

[22] Gorni Zhurnal, October, 1929, p. 1757.

[23] Liberman, Lev; Trud i Byt, Moscow, 1929, p. 98. This is a monograph based on personal observation and the study of records of numerous investigations. The author had before the World War written reports on Russian coal mining.

[24] Russian Economic Notes, Dec. 5, 1930, p. 1.

Coal-cutting machines and production per machine in Donetz Basin [1]

	Number heavy cutting machines on average in year	Average annual production per machine
		Tons
1922–23	32.0	6,264
1923–24	36.0	7,541
1924–25	48.0	10,682
1925–26	90.0	13,007
1926–27	225.0	14,196
1927–28	348.5	14,300

[1] Trud i Byt, p. 97.

2. *Other equipment.*—Mechanical means of hauling the coal from the mines are inadequate. In 1927–28, of 5,515,000 tons of coal mechanically mined, only 930,000 tons were hauled out by electricity.[25] The mining commission found the electrical motors in bad condition. They are not in general properly protected. Seventy per cent were in a dangerous mechanical state or dangerously placed. The hoisting and drawing cables were also defective.[26] Good arrangement for disposal of waste (rock and other foreign matter displaced in the procurement of the coal) was absent in 80 per cent of the mines (of three large centers investigated). There is an insufficient supply of timbers, and insufficient timbering.[27] The elevators (hoists) in 27 per cent of the mines investigated were in need of replacement or repair. A continuous supply of power for moving the elevators was available in only half of the shafts.[28]

3. *Ventilation.*—Ventilation does not keep pace with mine development. There is a marked absence of duplicate ventilation. Of 42 working areas observed, 64 per cent had insufficient ventilation, 62 per cent had no substitute ventilation, and 60 per cent of ventilation lacked sufficient power. Great inefficiency was observed in the use of available ventilation equipment.[29]

4. *Gas, dust, and explosives, etc.*—In eight months of 1928–29, 18,000 stoppages of work were caused by excessive density of gas. Workmen do not properly obey the rules for the protection against gas. In the first quarter of 1928–29, of 449 reported cases of breaking regulations, including smoking in mines, discipline was administered in only 256 cases.[30] Sixty-nine mines of those investigated were found to be dangerous because of dust. The dust is dampened in only 15 per cent of the mines. Explosives are stored and transported in an unsafe manner and the men who use explosives in many cases do not know how to handle them.[31] Electric light is insufficient in all mines, and available lights are often improperly placed. In the mines investigated 71 per cent of the workmen did not have individual lamps,[32] and the lamps that are used have many defects and many require repair. Repairs are very inefficient.[33]

[25] Trud i Byt., p. 99.
[26] Gorni Zhurnal, November, 1929, p. 1871.
[27] Ibid, 1869.
[28] Ibid, p. 1868.
[29] Ibid, p. 1864–65.
[30] Ibid, p. 1865.
[31] Gorni Zhurnal, November, 1929, p. 1866
[32] Ibid, p. 1867.
[33] Ibid, p. 1867.

5. *Water supply.*—The water supply is insufficient and bad. Not more than 10 per cent of the supply is potable, and all the water is hard. The open wells used by the miners are insanitary. On the basis of 50 liters per capita per day, the water supply in the Donetz Basin is not equal to 44 per cent of the present requirements.[34] The present distribution of the water is extremely inefficient.[35]

IX. Conditions of Labor in Donetz Coal Mines

1. *Labor supply.*—The average number of workmen employed by the Donetz coal mines increased from 78,000 in 1921 [36] to 175,000 [37] in the second quarter of 1928–29, and to 185,000 in August, 1930.[38] There is a large turnover of labor. In 1924–25 an average of 89,000 workers was maintained. In the same year 117,000 workers were hired and 129,000 quit or were discharged. The average number of workmen maintained in 1925–26 was 126,000, requiring the hiring of 172,000 new men, mostly to replace the 149,000 who left. In 1926–27 the number of workers on the job averaged 140,000, involving the hiring of 191,000, while 182,000 had left during the year.[39] The total number of workmen hired during the first half of 1929–30 was 195,239, while the number leaving their jobs was 178,830.[40] Undoubtedly many of the workmen reported as leaving are hired again during the same year. The turnover, in any case, is asserted by numerous soviet sources to be enormous and to create a serious problem, since there can be no proper training or discipline of workers with such a changing supply. At present the demand for workmen in the Donetz Basin exceeds the supply.

2. *Technical workers.*—In the Donetz Basin there is a decided shortage of foremen, technicians, and other skilled workmen.[41] However, a good deal of foreign technical assistance is being utilized. Three United States engineering firms, in addition to European concerns, are assisting the Donetz coal industry.[42] It is stated that foreign technical experts are paid as much as $10,000 a year.

Four years ago the maximum pay for any communist was 225 rubles per month. Now the law has been changed so that the compensation for communist engineers and technicians, as well as noncommunists, may be greater than 225 rubles and may be even a thousand rubles a month, according to the individual abilities they display in their work.[43]

In 1928 the average monthly salary of the highest general class of technical personnel in the Donetz Basin was 391 rubles.[44] The middle grade received 259 rubles and the lowest grade, 185 rubles. The average was 243 rubles.[45]

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[34] Trud i Byt., p. 122.
[35] Ibid, p. 123.
[36] La Vie Economique des Soviets, May 20, 1929, p. 6.
[37] Russian Economic Notes, May 17, 1929, p. 3.
[38] Russian Economic Notes, Dec. 5, 1930, p. 1.
[39] Trud i Byt., p. 103.
[40] Russian Economic Notes, June 27, 1930, p. 6.
[41] Russian Economic Notes, July 18, 1930, p. 4.
[42] The American companies are Stuart, James and Cooke; the Roberts and Schaefer Co.; and the Allen and Garcia Co. (Economic Review of the Soviet Union, Apr. 15, 1930, p. 149.)
[43] Hugh L. Cooper in Williamstown Institute of Politics. Proceedings, Aug. 1 and 2, 1930, p. 8.
[44] It is not known whether foreigners were included in these statistics.
[45] Gorni Zhurnal, March, 1929, p. 333.

The following table shows the percentage of all the technical personnel which was in each salary grade:

Salaries of engineering-technical personnel in Donetz Basin, 1928 [46]

Rubles per month:	Percentage of total engineers
Not over 150	7.8
151–200	28.2
201–250	27.7
251–300	17.9
301–350	9.3
351–400	4.6
401–450	2.2
451–500	1.3
501–550	.6
551–600	.4
	100.0

A number of observers have stated that the technical directors of industry in Russia experience many difficulties and hardships in endeavoring to train and organize the inexperienced workmen who look with suspicion on all who would exert authority.[47] Efforts are being made to furnish technical training to foremen and mechanicians.[48]

3. *Efficiency of workers.*—Production per man in the Russian coal mines in the Donetz Basin is low. The following table shows the output per workman per month in the Donetz Basin:

Tons of coal produced per month, per worker, in "Donougol" coal trust [49]

1921–22	5.8
1922–23	5.3
1923–24	7.2
1924–25	8.7
1925–26	10.5
1926–27	11.5
1927–28	12.4

In the Pennsylvania anthracite mines the average output per man per day in 1929 was 1.93 tons.[50] For a month of 25 days the American average output per man would be 48 tons compared with slightly over 12 tons in the Donetz Basin. Moreover, but a small percentage of the Pennsylvania production is obtained by machines. The Russian production per workman is, however, increasing. A comparison of machine cutting shows that the Russian efficiency is only half of that in the Ruhr mines.[51] Neglect of the machines in Russia and their unorganized distribution lead to inefficient utilization of the available equipment. Some machines stand idle for weeks and even months for lack of separate parts or because of inadequate repairs.[52]

Col. Hugh L. Cooper, an American engineer, who is directing the construction of a large electrical power plant in Russia on the Dnieper River says of the Russian workman:[53]

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[46] Gorni Zhurnal, March, 1929, p. 335.
[47] cf. Chamberlain, Wm. H., Soviet Russia, Boston, 1930, p. 160.
[48] La Vie Economique des Soviets, May 20, 1929, p. 7.
[49] La Vie Économique des Soviets, May 20, 1929, p. 7.
[50] Department of Commerce, Bureau of Mines. Statement issued Aug. 23, 1930.
[51] Trud i Byt., p. 98.
[52] Russian Economic Notes, July 18, 1930, p. 4.
[53] In Williamstown Institute of Politics. Proceedings, Aug. 1 and 2, 1930, p. 7.

Our first year's experience in teaching the Russian workman to use American construction equipment which cost $3,000,000, was filled with much heartache and discouragement. The performances of the workmen have so improved that there is now no doubt in my mind as to the capacity of Russian labor to be eventually trained to an efficient performance in any line of skilled work that future industrial needs may require.

4. *Labor unions.*—The latest available published information on the Donetz miners' unions is a report of a personal investigation made by John Strachey, former editor of the English mining journal, "The Miner". Mr. Strachey's report was published in 1928. Except where otherwise stated the statements in this section are from his report. It says of the Donetz union: [54]

> The basic unit on which it is built up is what we should call the "lodge" or "branch." This is an industrial unit, organizing all the men working in a particular mine or group of mines. These are "Rudnicks" * * *. There is a complex structure of committees and subcommittees both above and below these "Rudnick" lodges.
>
> The Miners' Union is a centralized industrial union. It is an industrial union because it takes in all the workers on the pay rolls of the mining economic organs, whether they are engaged in clerical work * * * or in hewing coal * * * and it is a centralized union because it has one single central committee controlling the major portions of its financial resources.
>
> The basic work of a trade-union in Russia is to conclude collective agreements covering the wages, hours, conditions (i. e., work clothes, holidays, order of hiring and discharge, etc.) of its members with the management. These collective agreements are made with the group of Rudnick managements; but, at the same time, the union is in close touch with the other economic organs, and it has the right to have submitted to it plans for development, etc.

The trade-union has a considerable voice in the selection of the managing personnel of the mines.

Membership in the union, according to Mr. Strachey's report, is not compulsory [55] but, because of the privileges accompanying the membership, most of the regular workers of the industry belong to the union.

There are many rules and regulations covering discipline, but, because of the strong position of the workers, the rules do not appear to be well enforced. Especially the tremendous turnover of workers described elsewhere, the willingness of the workers to quit, the hordes of inexperienced peasants entering the mines,[56] and the necessity of holding as many workers as possible can not fail to break down a strict discipline.

5. *Hours of work and wages.*—The underground worker in the Donetz mines works six hours a day.[57] In some, if not all, mines the continuous week has been adopted. In such cases the miner works five days a week. Definite information has not been obtained as to the hours of work of the aboveground workers. They are either seven or eight hours. Underground workers receive an annual vacation of a month with pay.[57] Other workers receive a vacation of two weeks with pay.[58]

The average monthly wages in the Donetz Basin in 1927–28 were 64 rubles, and in 1928–29, 70 rubles. According to plan they will be

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[54] Strachey, John, Workers' Control in the Russian Mining Industry, London, 1928, pp. 16–18.
[55] According to a statement of the U. S. Department of Commerce relative to Soviet Russia, "all workers belong to unions and no nonunion labor is permitted." ("Report on Labor in the Coal fields of Soviet Russia.")
[56] Cf. La Vie Economique des Soviets, May 20, 1930, p. 6.
[57] Trud i Byt. p. 108.
[58] Economic Review of Soviet Union, Apr. 15, 1930, p. 150.

about 75 rubles in 1929–30.[59] Face miners receive about 4 rubles per day.[60]

The worker is also insured against sickness, accident, old age, and unemployment, the expenses of such insurance being paid by the Coal Trust or state.[61] These insurances cost the employers about 15 per cent of the total pay roll.[62] Most workers in the coal fields pay either a nominal rent for housing or none at all. Electric light, fuel, and other municipal services and a considerable amount of working clothes are supplied free of charge or at a very low rate. Restaurants subsidized by the administration supply food at low cost. It is asserted that all these additional benefits amount to 50 per cent of the wages.[62]

X. Social Conditions

1. *Housing.*—The Soviet Government in the 2-year period from 1926 to 1928, spent 70,000,000 rubles for improved housing in the Donetz Basin,[63] and the construction of new housing is continuing. The new buildings consist of new flats for families and dormitories for single men. The typical new apartment building is a 2-story structure containing 2–4 flats. The typical flat has 2 rooms with a surface of 30 square meters, a kitchen of about 8 square meters, and a toilet room of one square meter. Some apartments have bath rooms.[64] Many of the new houses are equipped with water and electric light, but the drainage system is deficient. In practice many 1-room dwellings remain.[65] The houses are heated in the usual Russian way, by central stoves, one stove heating two or three rooms.[65]

Numerous dormitories for single men have been constructed. The new dormitories allow a surface of 13 square meters per man.[66] Seventy per cent of the coal miners in Russia lived in "company" buildings. In the Donetz Basin on October 1, 1929, the floor area per coal miner who was living in company buildings was 4.64 square meters (about 5 square yards).

> It was hoped that during the current year it would be possible to increase the housing accommodations to 4.75 square meters of floor space per coal miner in the Donetz Basin. * * * However, the high turnover of labor in this industry made it impossible to carry out the measures for the improvement of housing facilities.[67]

There is much crowding, and housing conditions are unsatisfactory.[68]

2. *Family budgets and food.*—In 1928 the budgets of 37 representative mining families were investigated by a committee of the labor union. The average yearly income per family studied was 758 rubles in 1927.[69]

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[59] Gorni Zhurnal, October, 1929, p. 1760.
[60] Economic Review of Soviet Union, Apr. 15, 1930, pp. 149–150.
[61] Haensel, Paul, Wirtschaftspolitik Russlands, 1930, p. 94.
[62] Economic Review of Soviet Union, Apr. 15, 1930, p. 150.
[63] Trud i Byt. p. 117.
[64] Ibid.
[65] Strachey, op. cit., p. 23.
[66] Trud i Byt. pp. 111, 117.
[67] Izvestia, Oct. 16, 1930. Translation in Russian Economic Notes, Nov. 21, 1930, p. 7.
[68] Trud i Byt. pp. 118–120.
[69] Ibid, p. 111.

The sources of income in percentages were as follows:

Sources of income of mining family of Donetz Basin, 1927 [70]

	Per cent
Pay of head of house	78. 0
Pay of other members of family	6. 6
Insurance and social benefits	5. 2
Other	10. 2
Total	100. 0

The following table shows in percentages the distribution of expenditure of the families studied:

Average budget in Donetz Basin in per cent of total

	1925	1926	1927
	Per cent	*Per cent*	*Per cent* [1]
Rent and heating	9.9	12.0	11.6
Food	45.5	44.1	43.6
Wine, tobacco, and matches	1.1	1.2	1.4
Clothing and shoes	27.0	24.7	22.9
Laundry, soap, hygiene	1.1	1.0	1.0
Doctor	.3	.2	.2
Furniture, etc	3.6	3.2	2.9
Culture and education	1.7	2.0	2.4
Social, political	1.9	2.7	1.7
Other	7.3	6.0	9.2
Total	100.0	100.0	100.0

[1] Trud i Byt., p. 113.

The supplies of clothing and other articles received do not depend wholly on the wages received. Many goods are rationed. A qualified observer writes of Russia in 1930:

> There is no essential product to-day that is not being rationed. Not only is the food supply controlled by bread cards but the textile supply is also limited to a certain maximum per individual. Meat can be procured only with cards and then in very small quantities. The same thing is true of shoes, milk, medicine, cigarettes, and tobacco. Soap is virtually unobtainable.[71]

A statement in the soviet press says of the Donetz Basin:

> The cooperative stores have plainly been unable to supply the workers with goods needed by them.[72]

With regard to food it is stated that poor families in the Donetz Basin live mostly on potatoes, bread, and fats, but that the better paid can afford butter, sugar, fruit, milk, eggs, candy, and fish.[73] In recent months of 1930 there has been much complaint of the insufficient supplies and poor quality of food furnished in the Donetz Basin,[74]

[70] Trud i Byt., p. 112.
[71] Nikolaus Basseches in The Living Age, Sept., 1930, p. 21.
[72] Russian Economic Notes, Oct. 10, 1930, p. 2.
[73] Trud i Byt, p. 114.
[74] Izvestia, and other Russian newspapers.

and this is said to be one reason why such large numbers of workmen leave the Donetz mining fields. A statement in the official Izvestia of August 17, 1930, says:

> The inefficient distribution of food supplies in the Donetz Basin is another important cause of high labor turnover. Reports from various localities indicate that the attitude of the consumers' cooperatives in the Donetz coal district toward their work is almost criminal. Shortage of vegetables, sales of spoiled cabbage, 2.5 rubles as the price of a kilogram of tomatoes, while there is an abundant crop of these in the Ukraine, are intolerable. The cooperative organizations of the Ukraine are as guilty as those of the Donetz Basin because, in the face of the shortage of vegetables in the Donetz Basin, they failed to ship the required quantities to that district, while similar shipments to other localities were much in excess of the need.

○

UNITED STATES TARIFF COMMISSION

WASHINGTON

REPORT OF THE UNITED STATES TARIFF COMMISSION TO THE PRESIDENT OF THE UNITED STATES

UNDER THE PROVISIONS OF SECTION 316 OF TITLE III OF THE TARIFF ACT OF 1922

OPINION

FINDINGS AND RECOMMENDATIONS

In the matter of alleged unfair methods of competition and unfair acts in the importation and sale of

SYNTHETIC PHENOLIC RESIN, FORM C

AND ARTICLES MADE WHOLLY OR IN PART THEREOF

WITH APPENDIX

Report no. 3, Second series

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1931

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CONTENTS

	Page
Letter of transmittal	v
Opinion of the commission	1
Findings and recommendations—	
Findings	22
Recommendations	27
Concurring and dissenting views	28
Proceedings subsequent to adoption of findings	29
Appendix—	
Order of the President prohibiting the importation of synthetic phenolic resin, Form C, with certain exceptions—T. D. 44411	30
Order of the President excluding from importation synthetic phenolic resin, Form C, construed—T. D. 44491	32

LETTER OF TRANSMITTAL

OCTOBER 20, 1930.

The PRESIDENT,
The White House.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the official record with the final findings of the Tariff Commission (inclosure No. 1), in an investigation conducted by the commission for the purposes of section 316 of the tariff act of 1922, of alleged unfair methods of competition and unfair acts in the importation and sale of synthetic phenolic resin, Form C, and articles made wholly or in part thereof.

On May 25, 1927, the commission adopted findings of fact and law and also recommendations in that investigation and on May 26, 1927, served copies thereof upon the parties of record. An appeal was taken by importers, in accordance with said section 316, to the Court of Customs (now Customs and Patent) Appeals from findings of law. The court affirmed the commission's findings. A petition for a writ of certiorari for review by the United States Supreme Court of the decision of the Court of Customs and Patent Appeals was denied on October 13, 1930. For the purposes of section 316, this action of the Supreme Court ended the judicial proceedings.

I also have the honor to transmit a draft of the request from you to the Secretary of the Treasury for refusal of entry of importations of synthetic phenolic resin, Form C, and articles made thereof (inclosure No. 2).

Faithfully yours,

HENRY P. FLETCHER, *Chairman.*

UNITED STATES TARIFF COMMISSION

WASHINGTON

In the matter of investigation of alleged unfair methods of competition and unfair acts in the importation and sale of synthetic phenolic resin, Form C, and articles made wholly or in part thereof. (Sec. 316, Doc. No. 4.)

OPINION OF THE COMMISSION

This is an investigation under the provisions of section 316, Title III, of the tariff act of 1922, for the purpose of assisting the President in the exercise of the powers conferred upon him by that section.

On April 16, 1926, upon consideration of complaints under oath and supplementary papers filed by the Bakelite Corporation, Abse Bros., Embed Art Corporation, Kaufmann Bros. and Bondy, Reiss-Premier Pipe Co., S. M. Frank & Co. (Inc.), Wm. Demuth & Co., and L. & H. Stern (Inc.), the United States Tariff Commission instituted an investigation into alleged unfair methods of competition and unfair acts in the importation and sale of synthetic phenolic resin, Form C, and articles made wholly or in part thereof, in infringement of the patent rights of the Bakelite Corporation. The order of the commission provided that "all persons, firms, and corporations concerned as owners, importers, consignees, agents, or otherwise in the alleged unfair methods of competition and unfair acts in the importation and sale of said articles" would be afforded opportunity to answer the complaints on or before May 17, 1926, and show cause, if any they had, why the provisions of section 316 should not be applied in respect of the articles complained of. The order further provided that a public hearing be held on May 24, 1926, at which all interested parties would be afforded opportunity to be present, to produce evidence, and to be heard concerning the alleged unfair methods of competition and unfair acts.

Public notice of the investigation and hearing was given by publishing a copy of the order once a week for two successive weeks in Treasury Decisions and in Commerce Reports; by posting a copy thereof for 30 days prior to May 17, 1926, at the offices of the commission in Washington and New York; and by sending a copy of said order by registered mail to such persons, firms, and corporations concerned in the subject mater of the investigation, whose names and addresses were known to the secretary of the commission before the return date of said order.

On April 16, 1926, the commission reported to the President the facts alleged in the complaints and papers filed therewith, and recommended that pending completion of the investigation the articles complained of be forbidden entry, in accordance with the provisions of section 316 (*f*).

On April 26, 1926, by direction of the President the Secretary of the Treasury instructed the collectors of customs to forbid entry to "synthetic phenolic resin of Form C, and all articles manufactured wholly or in part thereof, except articles made by molding synthetic phenolic resin when mixed with other articles." T. D. 41512.

On May 12, 1926, an answer with supporting papers was filed by Frischer & Co. (Inc.), Randes Import Co., Transatlantic Clock & Watch Co., and Western Brier Pipe Co. Said answer concluded with a prayer that the order of the President prohibiting entry of the articles complained of "be immediately dissolved, rescinded, and the proceedings be dismissed."

On May 13, 1926, the commission ordered that the subject matter of said prayer, treated as a motion to vacate the temporary order of exclusion, be set down for hearing on May 17, 1926. On that date the motion was argued before the commission.

On May 24, 1926, in accordance with the terms of the commission's order, the public hearing began. At the opening of the hearing parties were informed that inasmuch as a ruling upon respondent's motion would appear to involve a determination of the case upon its merits, ruling would be reserved until completion of the investigation. Sessions of the hearing were held on May 25 and June 8 to 12, inclusive, 1926. Evidence, oral and written, was submitted and the matters in question argued by counsel. On July 5, 1926, the date set for filing of briefs, briefs were filed by complainants and respondents. Permission having been given by the commission, a brief was also filed by the National Council of American Importers and Traders.

On December 2, 1926, the commission reported to the President that two of the patents upon which the complaints were based in part would expire on December 6, 1926, and recommended that the temporary order of exclusion be modified.

On December 7, 1926, by direction of the President the Secretary of the Treasury instructed customs officers to exclude after December 6, 1926, "only products composed of different colored sections of synthetic phenolic resin of Form C (except articles made by molding synthetic phenolic resin when mixed with other materials) joined together by applying a fusible phenolic condensation product to the surfaces to be joined, which fusible product has been converted to the infusible state by means of heat or heat and pressure." T. D. 41895.

On December 18, 1926, respondents filed with the commission a motion that the proceedings be dismissed, or in the alternative, that the proceedings be reopened for the taking of further evidence with respect to United States Patent No. 1424738. On December 28, 1926, the commission heard arguments upon the motion.

On January 3, 1927, the commission ordered that the motion to dismiss the proceedings be denied without prejudice to any respondent's moving to dismiss at the close of the proceedings, and that a further hearing be held on February 8, 1927. The order of the commission provided that on the date set all parties in interest would be afforded opportunity to be present, to produce evidence, and to be heard concerning "alleged unfair methods of competition and unfair acts in the importation or sale of articles made of synthetic phenolic resin of Form C (except articles made by molding synthetic phenolic resin of Form C when mixed with other materials) composed of

different colored sections of a phenolic condensation product joined together, including the question of unfair methods of competition or unfair acts by way of infringement of United States Trade-Marks No. 75266 and No. 170772, and of United States Patent No. 1424738: *Provided*, That said respondents on or before January 15, 1927, shall file with the commission and serve upon the parties who have heretofore entered appearance in this investigation a bill of particulars showing what matters they intend to prove at such further hearing."

In accordance with its terms said order was published in the usual manner.

On the date set, February 8, 1927, in accordance with request of counsel representing complainants and respondents and by order of the commission under date of February 2, 1927, the further hearing was adjourned until February 11, 1927. Sessions of the hearing were held on February 11 and 12, 1927, at which evidence both oral and written was submitted and the matters covered by the scope of the hearing argued by counsel.

February 19, 1927, was set as the date for the filing of briefs. On that date briefs were filed by complainants and by respondents.

In accordance with the statutory requirement, testimony at the hearings was reduced to writing and a transcript thereof, together with the findings and recommendations of the commission, forms the official record of the proceedings and findings in this investigation.

The General Bakelite Co. was formed in 1910, and in that year began the manufacture of bakelite products in its plant at Perth Amboy, N. J. Bakelite, Form C, was, however, manufactured before the issuance in December, 1909, of the patents involved in this investigation, but not in commercial quantities. A trade-mark for the word "bakelite," the name adopted by the inventor for condensation products of phenol and formaldehyde, was applied for on June 20, 1908, and registered on September 14, 1909, No. 75266. A trade-mark for the word "bakelite" for pipes and pipe parts and cigar and cigarette holders was registered on July 24, 1923, No. 170772. A statement appears in the latter trade-mark that the word "bakelite" "has been continuously used in the business" of the General Bakelite Co. since June 10, 1910.

The Bakelite Corporation was organized in 1922 by merger of the Redmanol Chemical Products Co. and the Condensite Co. with the General Bakelite Co. The corporation has five plants in the United States, located at Perth Amboy, N. J.; Bloomfield, N. J.; Painesville, Ohio; Chicago, Ill.; and Wyandotte, Mich.; and one foreign plant located at Toronto, Canada, bearing the name of the Bakelite Corporation of Canada.

The Bakelite Corporation is capitalized at about $3,500,000, and investment in plants and equipment in the United States totals more than $2,000,000.

The Bakelite Corporation, under its patents, manufactures the material synthetic phenolic resin, Form C. Such material in its natural color bears a close resemblance to amber. Its principal characteristics are infusibility, insolubility, toughness, and strength, and its capacity for being machined and highly polished. Said material is sold to domestic manufacturers of beads, jewelry novelties, and smokers' articles, most of whom have joined in the complaint herein. Two companies represent the entire industry in the United

States manufacturing beads and novelty jewelry from synthetic phenolic resin, Form C, purchased from the Bakelite Corporation, namely, Abse Bros., and the Embed Art Corporation. Said two companies are not in direct competition with each other, the Embed Art Corporation manufacturing exclusively round and smooth articles and Abse Bros. faceted and cut articles. Companies engaged in processing cigar and cigarette holders and other smokers' articles from synthetic phenolic resin, Form C, purchased from the Bakelite Corporation, are Kaufmann Bros. and Bondy, Reiss-Premier Pipe Co., S. M. Frank & Co. (Inc.), Wm. Demuth & Co., and L. & H. Stern (Inc.).

The Bakelite Corporation spent $206,474 in 1924 and $217,867 in 1925 advertising its products under the name "bakelite" through such mediums as the Saturday Evening Post, The Nation's Business, and through electrical, mechanical, and engineering journals, as well as by direct mail.

Patents herein considered are United States patents numbered 942699, 942700, 942809, 699516, 1019407, 1019408, and 1424738. They are considered under two heads: (1) Single-color products, and (2) multicolored products. Under the first classification fall patents numbered 942699, 942700, and 942809. Patent No. 942700 covers the preparation of an intermediate product by the condensation of a phenolic body and formaldehyde and the conversion of this into an insoluble and infusible product. The use of heat and pressure is involved in this patent. Patent No. 942699 has been passed upon in two suits as the base heat and pressure patent and was held to be valid. The two court cases are hereinafter considered. Patent No. 942809 was considered in both of those cases. The validity of this patent was not expressly determined, but in the manufacture of products thereunder the heat and pressure process of Patent No. 942699 is employed with an additional step, namely, the use of a specified maximum quantity of base.

Under the second heading, dealing with multicolored products, patents numbered 699516, 1019407, 1019408, and 1424738, are considered. So far as has been shown, none of these patents has been involved in any litigation.

Questions presented are:

I. Does the jurisdiction of the United States Tariff Commission under section 316 include unfair methods of competition or unfair acts consisting in the importation and sale of articles alleged to infringe United States patents?

II. Does the evidence establish unfair methods of competition or unfair acts in respect of single-color products of synthetic phenolic resin, Form C?

1. During life of patents.
   - (*a*) Scope and validity of Patent No. 942809.
   - (*b*) Unfair methods or acts.
2. After expiration of patents.

III. Does the evidence establish unfair methods of competition or unfair acts in respect of multicolored products of synthetic phenolic resin, Form C?

1. Scope and validity of Patent No. 1424738.
2. Unfair methods or acts.

These phases of the investigation will be considered in the order stated.

I. Does the jurisdiction of the United States Tariff Commission under section 316 include unfair methods of competition or unfair acts consisting in the importation and sale of articles alleged to infringe United States patents?

Section 316 declares unlawful all "unfair methods of competition and unfair acts in the importation of articles into the United States, or in their sale by the owner, importer, consignee, or agent of either," having the effect or tendency to injure an American industry, and when found by the President to exist are required to be dealt with "in addition to any other provisions of law." The terms "unfair methods of competition" and "unfair acts" are not defined. There is no limitation either as to the method of competition or as to the articles imported. Any method or act whatever that is unfair in competition is sufficient to put the statute into operation.

Respondents contend that the determination of unfair competition based solely upon infringement of patents presents a question arising under the patent laws and that jurisdiction to determine such question is vested exclusively in Federal courts. This contention involves a misconception of the nature of this proceeding. Section 4884 of the Revised Statutes provides that a patentee shall have "the exclusive right to make, use, and vend the invention or discovery throughout the United States, and the Territories thereof." District courts have jurisdiction "of all suits at law or in equity arising under the patent, the copyright, and the trade-mark laws." (U. S. Code. title 28, sec. 41 (7). p. 867; Judicial Code, sec. 24 (7).) They, therefore, have jurisdiction of patented articles (*a*) made in the United States, (*b*) used in the United States, or (*c*) sold in the United States. These provisions of law do not apply to the importation of merchandise.

The words "in addition to any other provisions of law" in section 316, imply a legislative purpose that the section shall supplement the remedies already provided by other provisions of law. In the opinion of the commission, it does not follow that because the Federal courts of the United States have jurisdiction of suits at law or in equity arising under the patent or trade-mark laws, section 316 is inapplicable in cases where the unfair method of competition or unfair act consists in the violation of rights granted under the patent or trade-mark laws.

Section 316 was enacted subsequent to the laws vesting jurisdiction in the Federal courts. A proceeding under that section is not a suit at law or in equity. It is not a contest between an individual American manufacturer and an individual importer, but a general inquiry in the public interest to determine the existence of unfair methods of competition or unfair acts. The remedies afforded thereby differ from those which would be accorded by the courts. A proceeding of this character necessarily involves rights under trade-mark or patent laws, but jurisdiction of the courts does not cover the same subject matter nor extend as far as that embraced in an investigation for the purposes of section 316. Infringement of a patent or of a trade-mark may be the basis of the complaint, but an order of the President issued under section 316 after investigation by the Tariff Commission operates directly upon importations. In order to invoke the statute the unfair method of competition or unfair act complained of must

have the effect or tendency "to destroy or substantially injure an industry, efficiently and economically operated, in the United States, or to prevent the establishment of such an industry, or to restrain or monopolize trade and commerce in the United States." These factors are not involved in a suit at law or in equity under the patent laws of the United States. The element of public interest must be considered in the determination of questions arising under section 316, as was stated in the commission's opinion in the investigation concerning revolvers, Docket No. 1, where the commission said:

> In reaching the conclusions here stated, it is hardly necessary to say that we have constantly borne in mind that section 316 is a part of the public law. The unfair methods of competition there declared unlawful must work injury to one or more individual producers, but in the view of this statute the effect on the individual is incidental and secondary. For the purpose of section 316 is not to protect complainant's business as such, but to safeguard an industry of the United States. The considerations upon which the machinery of the statute is set in motion must therefore be considerations primarily of a public nature.—Ninth Annual Report of the United States Tariff Commission, p. 106.

The situation presented by the manufacture in the United States of articles infringing patents is quite different from that presented by the importation of such articles made abroad. In the case of the sale of articles manufactured in the United States, the infringing manufacturer can be proceeded against and thus the unfair practice be reached at its source. Domestic patentees have no effective means through the courts of preventing the sale of imported merchandise in violation of their patent rights. Customs officers are forbidden to disclose information concerning importations. (Customs Regulations 1923, articles 1131, 1323.) When such merchandise is delivered from customs custody it may be and frequently is distributed throughout the United States. The difficulties which confront a patentee seeking to enforce his rights through the courts are practically insurmountable. He is required to proceed against each individual dealer selling the infringing articles, which of course would lead to a multiplicity of suits with little likelihood that all infringing dealers could be reached. The cost of the numerous suits with the small amount of damages which may be recovered in any one suit discourages resort to the courts. Moreover, a decree obtained against one dealer would have no binding effect upon others, and by the simple expedient of changing the consignees the effect of a decree when secured would be nullified. Unless, therefore, section 316 may be invoked to reach the foreign articles at the time and place of importation by forbidding entry into the United States of those articles which upon the facts in a particular case are found to violate rights of domestic manufacturers, such domestic manufacturers have no adequate remedy.

Section 316 declares unlawful unfair methods of competition and unfair acts in the importation of articles or in their sale. Section 4884 of the Revised Statutes, as heretofore stated, gives a patentee the exclusive right to sell in the United States articles covered by his patent. Imported articles are not excepted. Their sale in the United States without the consent of the owner of the United States patent infringes such patent. Boesch *v.* Graff, 133 U. S. 697, 702, 703; Bourjois *v.* Katzel, 260 U. S. 689, 692. Such sale brings the infringement within section 316. It constitutes an unfair method or unfair act within the meaning and intent of section 316 whenever it is established to the satisfaction of the President. When the unfair method

or act is found by the President to exist he may fix additional duties or require the exclusion of such articles from entry. Exclusion necessarily refers to importations which have not been entered, and accordingly refers to articles which have not been cleared through the customhouse and sold in the commerce or trade of the United States. The existence of the unfair method or act is predicated upon importation and sale in the United States; the remedy prescribed by the statute is specifically against importation.

In the opinion of the United States Tariff Commission the jurisdiction of the commission in investigations for the puposes of section 316 is not defeated by the mere fact that the unfair methods or acts complained of arise from violation of rights granted under the patent laws. Manifestly there can be no infringement of an invalid patent. It follows that the validity of a patent may be an essential element of the investigation.

II. Does the evidence establish unfair methods of competition or unfair acts in respect of single-color products of synthetic phenolic resin, Form C?

1. DURING LIFE OF PATENTS

(*a*) Scope and Validity of Patent No. 942809

Respondents contend (1) that the only patent involved in this proceeding is Patent No. 942809; and (2) that said patent is wholly invalid because anticipated by prior disclosures, or if not wholly invalid, that the product claims are void.

(1) As hereinbefore pointed out, this is neither a proceeding under the patent laws nor litigation between parties. Respondent importers and complainants are not the only persons concerned in the subject matter of an investigation of this kind, and therefore the scope of such proceeding is not limited by the allegations of a complaint. An investigation of this character is a general inquiry in the public interest to determine the existence of unfair methods of competition or unfair acts. In fulfilling its statutory duty the commission is required to ascertain whether unfair methods of competition or unfair acts exist in respect of particular articles. The resulting determination has the effect substantially to conclude all the world in respect of the importation of the articles the subject of investigation. Any evidence in the record tending to show the existence of such unfair methods or acts is sufficient to put the statute into operation. Patent No. 942699, being the base patent, is so closely related to Patent No. 942809 that in a proceeding of this character it must also be given consideration.

(2) Patent No. 942699 has been involved in two suits, namely, General Bakelite Co. *v.* General Insulate Co., 276 Fed. 166, and Bakelite Corporation *v.* Brunswick-Balke-Collender Co., decided on March 3, 1927, by the Circuit Court of Appeals for the Third Circuit. In the Insulate case, supra, the prior art was reviewed at length by Judge Chatfield. The work of prior inventors, the materials used by them, the methods they employed, and the products obtained by them were set forth. Patent No. 942699 was held to be valid and infringed.

Bakelite Corporation *v.* Brunswick-Balke-Collender Co., supra, involved a billiard ball consisting of a binder and a filler, the binder being a phenolic condensation product, which was claimed by the Bakelite Corporation to infringe claims 1, 2, and 4 of Patent No. 942699, and claims 1, 5, 6, 7, and 8 of Patent No. 942809. Patent No. 942699 was again held to be valid and infringed. This patent, the court said, prescribed three steps, "first, reacting on a phenolic body with formaldehye; second, converting that body by the combined action of heat and pressure; and third, thereby producing a hard, insoluble and infusible condensation products of phenol and formaldehyde." Heat and pressure, the court added, "had never been, theretofore, used to convert phenol and formaldehyde into a 'hard, insoluble, and infusible product.'" The court further stated: "Phenol was old and its general properties known; so also was formaldehyde. Their reactions on each other were old. The effect of heat upon them and the use of pressure were known, but with all this knowledge no one had ever used them so as to produce the product which Baekeland made them yield. And this productive, broad, general, and novel use of heat and pressure resulting in a 'hard, insoluble, and infusible condensation product' is clearly disclosed in the specification, and the equally broad, generic, and nonspecific agency of conversion by heat and pressure was claimed and allowed as a conversion of phenol and formaldehyde 'by the combined action of heat and pressure.'"

The court did not expressly determine the validity of Patent No. 942809, but affirmed the finding of the fact by the court below that there was noninfringement. The validity of this patent does not appear, however, to have been questioned. This decision of the Circuit Court of Appeals in our opinion is persuasive as to the validity of Patent No. 942809. As the court therein pointed out this patent was "for an improvement on the process" described in Patent No. 942699 by the use of a small proportion of base as a condensing agent to facilitate the reaction. In order to produce the product called for by Patent No. 942809 the process disclosed in Patent No. 942699 is followed with an added step, namely, that the reaction is carried out in the presence of a proportion of base less than one-fifth of the equimolecular proportion of phenolic body used.

Claims of Patent No. 942809 may be summarized briefly as follows:

Claim 1 is for a method of producing infusible and insoluble synthetic phenolic condensation products by reacting on a phenolic body with formaldehyde in the presence of a base serving as a condensing agent, the proportion of base in the product being less than one-fifth of the equimolecular proportion of the phenolic body used.

Claims 2, 3, and 4 each carry the process a step further. Claim 2 provides for separating water from the resulting product; claim 3 for separating water from the resulting product and hardening the product; and claim 4 for the use of heat and pressure. Claims 5 and 6 describe a method of producing a phenolic condensation product in accordance with the process described in claims 1, 2, 3, and 4, compounding the resulting body with a suitable material, and then hardening the composition by the application of heat and pressure. Claims 5 and 6 are not involved in this investigation. Claims 7 and 8 are product claims. Claim 8 covers broadly a "con-

densation product resulting from the reaction of a phenolic body and formaldehyde in the presence of a basic condensing agent, said condensation product characterized by its hardness, its insolubility in water and all known solvents, by its infusibility or resistance to heat, and by the presence therein of a proportion of free or combined base not exceeding one-fifth of the equimolecular proportion of phenolic body employed."

The history of the art before application was filed for Patent No. 942809 was reviewed in two cases arising in the District Court for the Southern District of New York, namely, General Bakelite Co. *v.* Nikolas, 225 Fed. 539, and General Bakelite Co. *v.* General Insulate Co., 276 Fed. 166. In the Nikolas case three patents for the use of condensation products in the manufacture of varnish were involved. The patent relied upon and to which the court gave particular consideration was No. 954666. The subject matter of this patent was originally included in the application for Patent No. 942809 and the applicant was required by the Patent Office to separate the two. In considering the prior art with respect to Patent No. 954666 the court examined the state of the art in general at the time the application for Patent No. 942809 was made. A large part of the opinion of Judge Chatfield in that case relates to this patent. (See 225 Fed. at pp. 547–549, 552–553.) Speaking of the use of base in the Baekeland patents the court said in part (p. 553): "Thus the small amount of base which Doctor Baekeland finds would universally produce the result desired was not disclosed by any of the prior patents, up to the time the application by Baekeland was filed."

At the time the application for Patent No. 942809 was filed it was known in the art that a resinlike body could be produced by interacting upon phenol with formaldehyde. It was also known that the use of a base would facilitate such reaction. However, there were still difficulties to be overcome. Other inventors had been unable to control the reactions with the use of a base so as to produce a commercially useful product of phenolic resin, Form C. The advance over the prior art made by Doctor Baekeland, so far as it is material in this investigation, consisted in the discovery that by using a limited proportion of base, namely, less than one-fifth of the equimolecular proportion of phenolic body used, the reaction could be controlled and expedited. Such limitation of the quantity of base rendered it unnecessary to remove any excess base by subsequent neutralization, and furthermore, by allowing such small percentage of base to subsist in the final product certain desirable properties were given thereto. In our opinion, Doctor Baekeland was also the first to discover that application of heat and pressure to the phenolic condensation product before it attained its final form would greatly expedite the reaction and prevent the escape of gases, thereby yielding a transparent, homogeneous product of uniform density.

Patents Nos. 942699 and 942809 expired by limitation on December 6, 1926. The record in this investigation and adjudicated cases hereinbefore considered disclose the following facts: (1) That there was no industrial and commercial use of synthetic phenolic resin, Form C, prior to these two patents; (2) that manu-

facture under these patents has been continuous; (3) that Patent No. 942699 has been expressly held to be valid in two contested cases; (4) that Patent No. 942809 employs the process of Patent No. 942699 with a single added step; (5) that during the entire life of these patents for 17 years ended December 6, 1926, there was no adjudication that they were invalid; (6) that during this period the domestic industry consisting of the companies manufacturing the material and those fabricating articles of commerce therefrom was developed; and (7) that such industry as a whole is of commercial importance to manufacturers in the United States and to the public.

In view of all the foregoing, the commission is of the opinion that Patent No. 942809, both as to process and product claims, is valid.

In reaching this conclusion, the commission has kept in mind the strong presumption of validity arising from the grant of a patent. Such grant by the Patent Office is prima facie evidence that the patentee is the first inventor of the device or discoverer of the art or process described in the patent. The burden of proof is upon the party alleging invalidity and every reasonable doubt should be resolved against him. (San Francisco Cornice Co. *v.* Beyrle, 195 Fed. 516, 518, and cases therein cited; Schumacher *v.* Buttonlath Mfg. Co., 292 Fed. 522, 531.) The commission feels that a decision by the Patent Office, a coordinate administrative body of the Government, after an inquiry by experts into the state of the prior art is entitled to great weight in a proceeding before the Tariff Commission involving a like question.

Respondents further contend that if Patent No. 942809 be valid the claims are restricted to the use of a base not less than one-half of 1 per cent and not more than one-fifth of the equimolecular proportion of phenolic body used. The commission is unable to assent to this view. It is true that in the specifications of the patent it is stated that "Additions of ammonia or caustic soda in so small a proportion as one-half per cent of the weight of phenol used show a decided influence, but in most cases it is desirable to use somewhat larger proportions, rarely attaining, however, 10 per cent by weight of the phenol or phenolic body." In the opinion of the commission, the purpose of this statement was not to fix a minimum limit, but to show the effect of using a quantity of base in an amount less than one-fifth of the equimolecular proportion of phenolic body used. In other words, Baekeland did not fix a range of limits governing the amount of base to be used, but his invention covered the use of a quantity of base up to but not exceeding a specified maximum quantity which rendered unnecessary subsequent removal of excess base. The true rule applicable here appears to be that methods of operation or features of construction which specifications recommend or describe as preferable do not thereby become a limitation of the claims. Smeeth *v.* Perkins, 125 Fed. 285, 288; Rollman Mfg. Co. *v.* Universal Hardware Works, 207 Fed. 97, 99, 100; Howe Machine Co. *v.* National Needle Co., 134 U. S. 388, 394.

In Rollman Mfg. Co. *v.* Universal Hardware Works, supra, the court said in part (p. 100):

> As to the defendant's contention that the claims of the patent are no broader than the details of the patentee's preferred construction described in the specification, it is difficult to see upon what ground this proposition is based. In order to comply with section 4888 of the Revised Statutes (U. S. Comp. St. 1901,

p. 3383), it was necessary that in his specification the applicant should explain the principle thereof and the best mode in which he contemplated applying that principle, and it was therefore prudent, if not necessary, for him to point out some practical preferred method for the operation of the machine, but, in the absence of any expression in his claim making the details thus pointed out an element therein, they would not under the ordinary rules be limited thereby. (Eastern Paper Bag Co. *v.* Continental Paper Bag Co. (C. C.) 142 Fed. 479.)—Rollman Mfg. Co. *v.* Universal Hardware Works, 207 Fed. 97, 99, 100.

In Howe Machine Co. *v.* National Needle Co., supra, the court quoted the following from White *v.* Dunbar, 119 U. S. 47, 52 (p. 394):

> The claim is a statutory requirement, prescribed for the very purpose of making the patentee define precisely what his invention is; and it is unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms. (Howe Machine Co. *v.* National Needle Co., 134 U. S. 388,394.)

The equimolecular proportion of any two chemical products is the quantities which are chemically equivalent. For example, the equimolecular proportion of phenol and ammonia (a base) is in a fixed ratio of 94 parts of phenol by weight to 17 parts of ammonia. Therefore, the quantity of this base equal to one-fifth of the equimolecular proportion of phenol would be 3.4 parts by weight of ammonia. The quantity of this base in the finished phenolic resin would be in about the same proportion, since the weight of the phenolic body produced is substantially equal to the weight of the phenol used.

(*b*) Unfair Methods or Acts

Upon the question whether unfair methods of competition or unfair acts existed in respect of importation and sale of the single-color products during the life of patents therefor, respondents contend that the product claims of Patent No. 942809 are invalid and that if the process claims be considered valid the importation and sale of articles made in accordance therewith did not constitute infringement and was therefore not unfair competition.

The commission recognizes the line of authority represented by American Graphophone Co. *v.* Gimbel Bros., 234 Fed. 361, 368, and cases therein cited, to the effect that the vendor of a product made according to a patented process is not liable to the patentee as an infringer and that in such cases the remedy is against the manufacturer. But it should be borne in mind that in the case of manufacture in the United States the patentee has a remedy; he can proceed against the domestic manufacturer, thereby stopping the evil at its source. But in the case of manufacture abroad of articles patented only in the United States, domestic patentees can not reach foreign manufacturers through the process of the Federal courts. If the contention of respondents be adopted domestic patentees would be remediless. To say that domestic manufacturers may protect rights acquired under patents against other domestic manufacturers and vendors, but not against foreign manufacturers and importers, is repugnant both to law and reason. Section 316 denounces as unlawful all unfair methods of competition or unfair acts which have the tendency to substantially injure or destroy an industry in the United States. If the provisions of that section be not invoked and applied, the injury and destruction of American industries built

up under patent protection and safeguarded from unfair domestic competition may be effected through importations. The commission feels that section 316 was intended to prevent such results.

The commission has hereinbefore expressed the belief that the product claims of Patent No. 942809 are valid. But assuming that the product claims are invalid, and that complainants' exclusive right to manufacture these products is confined to the processes described in said patent, were the imported articles, exhibits herein, manufactured by the process covered by Patent No. 942809? There is no disclosure by respondents of the method or process employed in the manufacture of said imported articles. In the absence of direct evidence on this point the question arises whether it is possible from the evidence to infer with reasonable certainty that the imported articles were in fact produced by the same process covered by Baekeland's patent.

Analyses made of the imported exhibits show a specific gravity ranging from 1.26 to 1.29, the presence of phenol, the presence of a base ranging from 0.03 of 1 per cent to 1.01 per cent, and that the products are infusible and insoluble. The specific gravity shown, namely, 1.26 to 1.29, is identical with the ordinary range of the specific gravity of synthetic phenolic resin, Form C, manufactured under Patent No. 942809. The presence of phenol indicates that the articles are phenolic condensation products in the manufacture of which phenol was used. A base ranging from 0.03 of 1 per cent to 1.01 per cent is within the maximum prescribed in Patent No. 942809. Furthermore, the fact that the imported articles are infusible and insoluble brings them within the description of the product called for by the product claims of the Baekeland patent. It appears, therefore, that there is identity of ingredients and also identity of product. It follows, to quote the language of the court in Bakelite Corporation *v.* Brunswick-Balke-Collender, supra, "there is presumable infringement, unless the defendant shows that its process, though using the same ingredients and obtaining the same product, is a process substantially different from that disclosed and claimed in the patent."

It is pertinent here to call attention to the following facts: (1) The Baekeland process made it possible to produce synthetic phenolic resin in a short period of time and with a degree of control which resulted in a uniform product of high quality; (2) the Baekeland process for the first time made it possible to produce synthetic phenolic resin on a commercial scale; (3) the Baekeland process being patented was universally known; (4) phenolic condensation products of the type here in issue were manufactured in Europe in accordance with and under a patent similar to the one here under consideration, which foreign patent was originally considered as valid; and (5) said European patent has been held to be invalid in Europe and for several years it has been open to anybody there to produce synthetic phenolic resin, Form C, in accordance with the Baekeland process.

The commission is, therefore, satisfied in the absence of proof to the contrary, that in the manufacture of these imported articles the process described in claims 1, 2, 3, and 4 of Patent No. 942809 was used and that these imported articles are the product covered by the product claims 7 and 8 of said patent.

Evidence in the record shows that it is a widespread practice to offer for sale and to sell such imported articles as "bakelite" or as "imported bakelite." Not only have articles covered by domestic patents been imported and sold in the United States, but their importation and sale have been aggravated by the appropriation of the domestic manufacturer's trade name. It is obvious that such practice can not but have the effect substantially to injure the good will of the domestic manufacturer.

The broad rule upon which rests the law of unfair competition, as the commission understands it, is that any conduct the natural and probable tendency and effect of which is to deceive the public, so as to pass off the goods or business of one person as and for that of another, constitutes unfair competition. This definition is comprehensive enough to reach every possible means of effecting the result. Relief against unfair competition is properly afforded upon the ground that one who has built up a good will for his goods or business is entitled to all the benefits that accrue therefrom. Such good will is property, and, like other property, is entitled to protection against invasion. In Federal Trade Commission *v.* Beech-Nut Co., 257 U. S. 441, of 1922, the Supreme Court, speaking of the words "unfair methods of competition," in section 5 of the Federal Trade Commission Act, said (p. 453):

> What shall constitute unfair methods of competition denounced by the act, is left without specific definition. Congress deemed it better to leave the subject without precise definition, and to have each case determined upon its own facts, owing to the multifarious means by which it is sought to effectuate such schemes. The commission, in the first instance, subject to the judicial review provided, has the determination of practices which come within the scope of the act. (Federal Trade Commission *v.* Beech-Nut Co., 257 U. S. 441, 453 of 1922.)

Prior to the issuance of the Baekeland patents, the manufacture of synthetic phenolic resin, Form C, and of articles made therefrom was unknown in the United States. Since June, 1910, the Bakelite Corporation and its predecessors have been engaged in the manufacture of such material under patents owned by it and such material and products made therefrom have been uniformly advertised and sold under the name "bakelite." As hereinbefore shown large sums of money were spent for this purpose. By such manufacture and sale over a long period of years a good will for such products has been established. This being so the importation into the United States of articles in violation of rights of domestic manufacturers, and the sale of such articles under the same name as that which the public has come to recognize as the name of the domestic product can not but have the effect of leading the purchasing public to believe that they are securing the product which they have come to recognize by that name. In other words, it seems clear that the Bakelite Corporation and those companies processing articles from material manufactured in accordance with the Baekeland patents are entitled to have protected the good will acquired through manufacture and sale over a long period of time. That such good will has been acquired under a monopoly based upon patent rights can not affect this conclusion.

The commission is satisfied that an unfair method of competition or unfair act within the intent and meaning of section 316 has been

established with respect to single-color products of synthetic phenolic resin, Form C, or articles made wholly or in part thereof, imported prior to the expiration of Patent No. 942809 on December 6, 1926.

2. AFTER EXPIRATION OF PATENTS

Respondents contend that while during the life of the patents the sale of imported products as "bakelite" might have constituted unfair competition, that upon the expiration of the patents the right to distinguish such articles by the name which they bore during the life of the patents passed to the public along with the right to make, use, and sell the patented article, provided the article clearly shows that it was produced not by the Bakelite Corporation, but by a different manufacturer; in other words, the contention, as we understand it, is that respondents herein and the public in general have the right to make cigar and cigarette holders and other articles from the material manufactured under Patent Nos. 942699, 942700, and 942809, and to sell such products under the name "bakelite," with the limitation above set forth.

As opposed to the contention that the name "bakelite" has become public property, the following may be noted: That some of the imported articles have been sold under such names as "Juvelith" or "Amberlite"; that the Bakelite Corporation manufactures articles other than products of synthetic phenolic resin, as, for example, brake linings, varnish, cement, molding compound, phenol, etc., to all of which the word "bakelite" is applied; and that as shown by the Chemistry of the Natural and Synthetic Resins, by T. Hedley Barry (p. 118), a leading authority on the subject of resins, "bakelite is the typical example" of formaldehyde phenolic resins, and that among "other trade products" of similar character are, in America, Redmanol, Condensite, Amberite, Phenoform, Sibolite Nuloid, Amberdeen, Abalack, etc.: in France, Melusite, Cerite; in Great Britain, Elo, Bakelaque. Other trade names are: Novolak (Baekeland), Resinite (Lebach), Laccain (Blumer), Dekorit (Raschig), Faturan (Traun), Resan (German), Invelith (Pollak), Formite (Damard Lacquer Co.), Metakalin (Bayer), Issolin (Dresden), Bucheronium (Köln-Ehrenfeld). See also Synthetic Resins and Their Plastics, by Ellis (p. 93 et seq). It may be further pointed out that the trade-mark "bakelite" to be applied to condensation products of phenol and formaldehyde generally, was registered in the Patent Office in September, 1909, several months before the patents in question were issued.

The extent to which these names other than "bakelite" are known to the general purchasing public is not shown, and while it sufficiently appears that synthetic phenolic resin articles have been sold under such names as "Juvelith" or "Amberlite," and that articles of a similar class have other names, it is evident from the record before the commission that the name by which the purchasing public generally knows single-color synthetic phenolic resin products is "bakelite." Proof that an article of a similar class has other names is not sufficient to overcome the general impression made by this record, namely, that such products are now known as "bakelite."

Singer Mfg. Co. *v.* June Mfg. Co., 163 U. S. 169, is the leading case upon this point. That case lays down a general rule that where

during the life of a monopoly created by a patent a name, whether it be arbitrarily selected or the inventor's surname has become with the consent of the inventor, either express or tacit, the identifying and generic name of the thing patented, this name passes to the public with the cessation of the monopoly which the patent created. With this right, however, the court held, a duty is imposed upon those seeking to avail themselves of such right to accompany the name with such indications that the thing manufactured is the product of the one making it as will clearly and unmistakably inform the public of that fact. Such requirement is made where the name of the article has come to mean not only the article itself but in a secondary sense the manufacturer.

The following, quoted from the case of Merriam Co. *v.* Saalfield, 198 Fed. 369, 375, is in point:

> So it is wrong, in such a case, and when this "secondary meaning" is once estabilsed, to start with the premise that defendant is entitled to use the word, prima facie, viewed from this point, he is not. The right, for the purposes of such a case, is primarily vested in the complainant. Defendant may not use the word at all, unless he accompanies it with the explanation; he must neutralize an otherwise false impression; he must "unmistakably inform" the public that the article is of his production (Singer Mfg. Co. *v.* June Mfg. Co., supra, 163 U. S. 200, 16 Sup. Ct. 1002, 41 L. Ed. 118); he must so distinguish that "no one with the exercise of ordinary care can mistake" (Saxlehner *v.* Eisner & Mendelsohn Co., 179 U. S. 19, 41, 21 Sup. Ct. 7, 45 L. Ed. 60); he must give "the antidote with the bane" (Herring, etc., Co. *v.* Hall, etc, Co., supra, 208 U. S. 559, 28 Sup. Ct. 350, 52 L. Ed. 616)—Merriam Co. *v.* Saalfield, 198 Fed. 369, 375.

Cigar and cigarette holders and other articles manufactured of synthetic phenolic resin, Form C, produced under the processes of Patents No. 942,699 and No. 942,809 have no features of dress, ornamentation, or other nonfunctional characteristic and said patents having expired, it would appear that anyone now has the right to make, use, and sell cigar and cigarette holders and others articles of such single-color material, even in the same form and having the same appearance as products of the complainants, on the theory that it is essential to commercial success to do so. Conceivably, anyone may have the right upon expiration of said patents to apply the name "bakelite" to such products on the theory that the name has become public property. Such right, however, is subject to the above-noted limitations.

The importation of articles manufactured abroad which are indistinguishable from like articles manufactured in the United States and the sale of such articles under the same name as that applied to the domestic articles for a long period of years naturally result in deception of the purchasing public to the injury of the domestic industry. The fact that the imported articles are equal in quality to the domestic articles does not prevent such acts from being unfair, (Hopkins on Trade-Marks, Trade Names, and Unfair Competition, 4th ed., p. 338, and cases therein cited.)

In cases of this character, as in many other instances, a line must ultimately be drawn between conflicting claims and equities balanced as between the parties and the public. It is desirable that the complainants should not lose business by reason of the public mistaking another manufacturer for them. On the other hand, it is desirable that respondents and other importers should be free to import and sell articles of the kind here under consideration, and to call them by the name by which the public has come to know them. These conflicting

desires can not both be fully satisfied, and the boundary must be fixed as best it can. (American Watch Co. *v.* U. S. Watch Co., 173 Mass. 85, 86; Hopkins on Trade-Marks, Trade Names, and Unfair Competition, 4th ed., p. 98*a*.)

The respondent importers have not been shown to have themselves engaged in "passing off" the imported single-color articles for the products of the domestic manufacturers. However, it would seem that such importers can not very well be unaware of the existence of such widespread practice among retailers. There is ample authority for the proposition that one who knowingly puts in the hands of dealers means reasonably calculated to deceive the ultimate purchaser is chargeable with the resulting unfair competition. (Nims on Unfair Competition and Trade-Marks, 2d ed., p. 664; Federal Trade Commission *v.* Winsted Co., 258 U. S. 483, 494; Warner *v.* Lilly. 265 U. S. 526, 530; Coca-Cola Co. *v.* Gay-Ola Co., 200 Fed. 720; petition for writ of certiorari denied, 229 U. S. 613.)

The commission is of the opinion that a duty is imposed upon the foreign manufacturer and domestic importer in this regard to take reasonable precautions so that "passing off" of imported articles will be rendered less probable.

Deception would be limited if the imported goods bore on them or had affixed to them some mark, name, inscription, or label, clearly and unmistakably showing that such articles are not the product of the Bakelite Corporation or of other domestic companies, who for a long period of years have had the exclusive right to manufacture and sell such products. Unless there be a deliberate purpose to trade upon the established reputation of the domestic companies, the commission can see no reason why any manufacturer or importer should object to distinguishing in this way the products made or sold by him. It is believed that such requirement will secure to the complainants the good will which they have acquired in the production and sale of bakelite articles and will allow the unimpeded importation of such products by those who seek to deal fairly.

The evidence indicates that imported cigar and cigarette holders and bead necklaces made of a substance which appears to be synthetic phenolic resin, Form C, are usually sold at prices ranging from one-third to one-half less than the prices at which similar articles of American manufacture are sold. On this point much testimony was offered tending to show the costs of production of the domestic industry. There is no evidence that imported articles are being sold or offered for sale below their own cost of production, and the commission does not understand that there is any contention to that effect. Evidence of underselling is material to show the injury resulting to the domestic industry by reason of the alleged unfair acts, but taken alone, in the opinion of the commission, need not be considered. It seems clear that mere underselling by importers of products similar to those manufactured by complainants does not of itself constitute an unfair method of competition or an unfair act.

The commission is therefore of the opinion that after the expiration of Patent No. 942809 on December 6, 1926, the importation into the United States and the sale therein of single-color articles of synthetic phenolic resin, Form C, which do not have on them or attached or affixed to them a distinguishing mark, name, inscription, or label.

clearly and unmistakably showing that they were not made by the Bakelite Corporation or other domestic companies duly authorized to use the trade name "bakelite," constitute an unfair method of competition or unfair act within the meaning of section 316.

III. Does the evidence establish unfair methods of competition or unfair acts in respect of multicolored products of synthetic phenolic resin, Form C?

1. Scope and Validity of Patent No. 1424738

Consideration will now be given by the commission to a particular group of synthetic phenolic resins, namely, the so-called multicolored products. Articles of this sort are manufactured by complainants under and in accordance with a patent owned by the Bakelite Corporation, to wit, Patent No. 1424738, which discloses a method of joining phenolic condensation products, Form C, by applying to the surfaces to be joined a solution of fusible phenolic resin capable of being converted to an infusible state and subjecting the sections while clamped together to the action of heat or of heat and pressure, resulting in a homogeneous product, the bond having a tensile strength equal to the original material. This material is manufactured by the Bakelite Corporation and is sold in the form of blocks or squares to domestic manufacturers who make cigar and cigarette holders and other articles. This patent will expire by limitation on July 31, 1939.

At the original hearing in this investigation respondents did not offer any evidence to show noninfringement in regard to this class of articles but contented themselves with an objection to the admission of the patent in evidence and to the consideration of evidence with respect thereto on the ground that said patent was not specifically mentioned in the complaint or in other papers filed by complainants.

But the allegations in a complaint do not determine the scope of an investigation for the purposes of section 316. Proceedings under that section are not contests between individual litigants as in a suit at law, but as has been hereinbefore pointed out, are based primarily upon considerations of a public nature. The original order in this proceeding covered unfair methods of competition and unfair acts "in the importation and sale of synthetic phenolic resin of Form C and articles made wholly or in part thereof in infringement of the patent rights of the Bakelite Corporation." The language of this order was sufficiently broad to charge all persons interested with notice that the investigation would cover all unfair methods of competition or unfair acts violating patent rights and not any particular patent. Furthermore, at the hearing a copy of Patent No. 1424738 and evidence with respect thereto were admitted in evidence over respondent's objection.

Extended discussion of this point has now been rendered unnecessary in view of the further hearing granted on January 3, 1927, after consideration of a motion filed by respondents. The order of the commission setting a date for such further hearing covered broadly all unfair methods of competition and unfair acts in the importation

or sale of articles made of synthetic phenolic resin, Form C, composed of different colored sections of a phenolic condensation product joined together.

The substance of the invention as claimed in Patent No. 1424738 consists, as the commission understands it, in a method of uniting sections of infusible and substantially insoluble phenolic condensation products by subjecting the surfaces to the action of a solvent, applying to said surfaces a fusible phenolic condensation product which is capable of being converted to an infusible and substantially insoluble state, and subjecting the whole mass to the action of heat or heat and pressure while the surfaces to be united are in contact, thereby converting the fusible product to an infusible and insoluble state. The solvent may be applied in combination with the fusible condensation product. This patent describes a sequence of steps leading to the desired product. The surfaces of the sections to be joined are first prepared or softened by the action of a suitable solvent so that the synthetic phenolic resin binder may unite chemically the sections to be joined. Synthetic phenolic resin products can not be satisfactorily joined together by merely roughening the surfaces to be joined and applying a synthetic phenolic cement under heat and pressure, because of the shrinkage involved. Patent No. 1424738 overcomes this shrinkage by preparation of the surfaces of the sections to be joined as above described. This is a significant feature of the patent. There is thus produced an article, such as a cigarette holder or pipe stem, comprised of sections of phenolic resin, Form C, of different colors but constituting a single homogeneous substance. Claims in the patent are for both process and product. Claims 11, 12, 13, and 14 are product claims covering the thing produced as distinguished from the method claims which cover the process.

Respondents' position, as the commission understands it, is that there is no infringement because Patent No. 1424738 lacks invention. It is argued that the thing called for by this patent was old in the art and that in fact the invention had been anticipated by prior patents. In support thereof various exhibits were offered in evidence consisting of the following: Articles by Doctor Baekeland appearing in the Journal of Industrial and Engineering Chemistry for December, 1911, and January, 1914 (Exhibits 177 and 178); Letters Patent No. 699516, issued May 6, 1902, to Julius Hackenberg covering the process of joining different colored pieces of celluloid together with the use of celluloid cement (Exhibit 180); Letters Patent 1019408 issued March 5, 1912, to Baekeland and Thurlow, covering the joining of wooden veneer to a base by means of a fluid phenolic resin product, the phenolic resin being converted to the infusible, insoluble state by means of heat and pressure, and Letters Patent No. 1019407, issued March 5, 1912, to L. H. Baekeland, covering the method of uniting objects generally, utilizing condensation products of phenol and formaldehyde as a cementing or adhesive material (Exhibit 181).

The relation of these exhibits to Patent No. 1424738 will be considered in the order stated.

In the articles written by Doctor Baekeland, reference is made to the use of synthetic phenolic resin as a glue, but the commission finds

nothing which would indicate that such material may be successfully used to join together products of synthetic phenolic resin.

Patent No. 699516 claims (1) a process of ornamenting celluloid articles by cementing together different colored strips or bands of celluloid into plates or blocks, cutting multicolored plates or strips therefrom and cementing them together in such relations as to yield the design desired; and (2) celluloid articles provided with ornamental strips or bands of different colored pieces of celluloid, joined together in the manner described. This patent is confined to celluloid articles.

Patent No. 1019408 covers (1) the process of finishing wood and like fibrous bodies by the application of a coating consisting essentially of a phenol formaldehyde condensation product which is capable of transformation by heat into an insoluble, infusible material and then applying heat and pressure, and (2) the process of attaching and finishing veneer in a single operation by applying a coating consisting essentially of a phenol formaldehyde condensation product capable of transformation by heat into insoluble, infusible substance, pressing the veneer to the base with application of heat, thereby simultaneously finishing the veneer and securing it to the base. The patent also covers (1) a product consisting of a base such as wood and wood veneer attached by an infusible and insoluble condensation product of phenol and formaldehyde with a surface coating and (2) a veneered product as above with a noncombustible base such as metal, stone, or asbestos sheet.

As neither Patent No. 699516 nor Patent No. 1019408 refers to the joining of synthetic phenolic resin products by the use of synthetic phenolic resin as a binding agent, the commission fails to see how under the disclosure made in said two patents it would have been possible to produce an article of synthetic phenolic resin so united.

Patent No. 1019407 describes generally the use of a condensation product of phenol and formaldehyde as a cement or adhesive material for uniting materials "of a suitable nature" as for example glass, wood, metal, pottery, stone, leather, etc., with or without filling materials. This patent is very general in its terms and it might be argued that synthetic phenolic resin products are included therein. Whether or not this be so, the result would be the same since Patent No. 1019407, like Patent No. 1424738, is owned by the Bakelite Corporation. Such products are not, however, specifically mentioned and the patent contains no reference to the preparation of the surfaces of sections to be joined, which, as stated, is a significant feature of Patent No. 1424738.

The evidence shows that attempts to join together sections of synthetic phenolic resin, Form C, under Patent No. 1019407 proved unsuccessful. Further research and experiment were necessary in order to produce a commercial product consisting of sections of synthetic phenolic resin joined together by synthetic phenolic resin cement. From the evidence the commission is satisfied that the work of the patentees of Patent No. 1424738 in evolving such a product constituted invention. This conclusion is supported by the fact that prior to manufacture under Patent No. 1424738 there was no production of articles of synthetic phenolic resin of two or more different colors joined together by chemical means. Articles such

as cigar and cigarette holders were manufactured of two or more colors attached by mechanical means, as by screws.

In view of all the foregoing the commission is of the opinion that Patent No. 1424738 is valid. In reaching this conclusion the commission has been mindful of the strong presumption of validity attendant upon the granting of Letters Patent by a coordinate administrative tribunal of the Government especially organized for that purpose. In the opinion of the commission respondents have failed to sustain the burden of proof resting upon them to show the nonexistence of complainant's right to protection of property rights under Patent No. 1424738.

2. Unfair Methods or Acts

An examination of the imported exhibits of multicolored articles indicates that a large number are homogeneous products in which the different colored sections appear to have been joined together by chemical means. There are also in evidence exhibits of multicolored articles which upon examination are found to be joined together by screws or other mechanical device. These articles are easily distinguished from those claimed to be infringements of the patent.

Analyses made of imported exhibits disclosed in each of the articles analyzed the presence of phenol and a specific gravity within the range of the specific gravity of the synthetic phenolic resin produced under the Baekeland patents. Respondents contend that these tests would not determine the character of the cementing agent joining the sections. One of complainant's witnesses testified that the character of the binder could be determined by (*a*) the refractive index, (*b*) the tensile strength by applying a load at right angles to the lamination, and (*c*) the specific gravity. No evidence was however offered to show the refractive index or tensile strength of any of the imported exhibits. Tests made do, however, establish to the satisfaction of the commission that the imported exhibits are synthetic phenolic resin, Form C, and that the different colored sections comprising the imported articles were joined by a chemical process. So far as has been shown the only chemical process by which synthetic phenolic resin, Form C, may be joined to other synthetic phenolic resin, Form C, is that disclosed in Patent No. 1424738. Prior to manufacture of products under that patent, articles of this character were joined together by some mechanical means, as by the use of screws. In the absence of any direct evidence as to the method or methods actually employed in the manufacture of the imported articles there is a strong presumption that such articles are made according to the process of Patent No. 1424738. For these reasons the commission is of the opinion that a violation of patent rights constituting an unfair method of competition or unfair act within the intent and meaning of section 316 has been established. Respondents and other importers are not concluded by a finding to that effect. If any importer shall establish that the articles sought to be entered by him are not united by a bonding agent comprising a phenolic condensation product, as called for by the product claims of said patent, it is clear that any order based on such finding will not apply to his merchandise.

The imported articles are in appearance indistinguishable from the domestic products except in the designation of the country of origin which appears on such articles in small and inconspicuous lettering. The record establishes that it is a widespread practice among retail dealers and by some importers to sell the imported multicolored articles as "bakelite," thereby representing that they are the product of the domestic manufacturers. Some are also sold as "imported bakelite." In other words, not only are the rights of domestic manufacturers to the exclusive manufacture and sale of such articles in the United States violated by the importation and sale of such articles from abroad, but in their sale the trade name of the domestic company has been appropriated by those dealing in the imported articles with resulting injury to the domestic industry. Such unfair practices in importation and sale have the tendency substantially to injure an industry efficiently and economically operated in the United States and in the opinion of the commission constitute unfair methods of competition and unfair acts within the statute.

Findings of fact will be made in accordance with the views hereinbefore expressed. It is obvious that the provisions of section 316 subdivision (*e*) providing for the imposition of an additional duty (not more than 50 per cent) "which will offset such method or act," would afford inadequate remedy for the unfair methods of competition and unfair acts here disclosed. It seems necessary to employ that clause of subdivision (*e*) which provides that the President in what he shall find "are extreme cases of unfair methods or acts" shall "direct that such articles as he shall deem the interests of the United States shall require, imported by any person violating the provisions of this act, shall be excluded from entry into the United States." Accordingly the recommendations of this commission will be to that effect.

In the matter of investigation of alleged unfair methods of competition and unfair acts in the importation and sale of synthetic phenolic resin, Form C, and articles made wholly or in part thereof. (Sec. 316, Doc. No. 4.)

FINDINGS AND RECOMMENDATIONS

In the investigation instituted on April 16, 1926, of alleged unfair methods of competition and unfair acts in the importation into the United States of synthetic phenolic resin, Form C, and articles made wholly or in part thereof, or in their sale by the owner, importer, consignee, or agent of either the United States Tariff Commission upon consideration of the complaint, answer, evidence, and exhibits in said investigation makes the following findings and recommendations:

FINDINGS

The United States Tariff Commission finds as follows:

1. That the industry in the United States engaged in the manufacture of synthetic phenolic resin, Form C, and articles made wholly or in part thereof, is efficiently and economically operated within the intent and meaning of section 316 of the tariff act of 1922.

2. That the Bakelite Corporation, a Delaware corporation having its principal place of business in the City of New York, is engaged in the manufacture of various forms of synthetic phenolic resin under the Baekeland and other patents of which it is the owner by assignment; Abse Bros., a partnership having their principal place of business in Brooklyn, N. Y., are engaged in the manufacture of beads, bead necklaces, bead bracelets, and bead earrings of synthetic phenolic resin, Form C; the Embed Art Corporation, a New Jersey corporation having its principal place of business at Perth Amboy, N. J., is or was engaged in the manufacture of beads, bead necklaces, and other articles of synthetic phenolic resin, Form C; and Kaufmann Bros. and Bondy, of New York, N. Y.; Reiss-Premier Pipe Co., of Union City, N. J.; S. M. Frank & Co. (Inc.), of New York, N. Y.; Wm. Demuth & Co., of New York, N. Y.; and L. & H. Stern (Inc.), of Brooklyn, N. Y., are engaged in the manufacture of cigar and cigarette holders of synthetic phenolic resin, Form C, in the United States.

3. That among the patents for the manufacture of synthetic phenolic resin owned by the Bakelite Corporation are United States Patent No. 942809 issued on December 7, 1909, to Leo H. Baekeland for a condensation product and method of making same; and United States Patent No. 1424738 issued on August 1, 1922, to L. V. Redman, A. J. Weith, and F. P. Brock for a phenolic condensation product article and method of manufacture.

4. That in accordance with the provisions of section 316 (*f*) of the tariff act of 1922, the President on April 22, 1926, after report by the Tariff Commission, requested the Secretary of the Treasury to forbid entry until such investigation as the President might deem necessary should be completed of synthetic phenolic resin, Form C, and articles made wholly or in part thereof, except articles made by molding syn-

thetic phenolic resin when mixed with other materials. The instructions of the Secretary of the Treasury to customs officers in accordance with this request were published in Treasury Decision 41512, dated April 26, 1926. On December 7, 1926, by direction of the President after report by the Tariff Commission, the Secretary of the Treasury instructed customs officers to exclude after December 6, 1926, "only products composed of different colored sections of synthetic phenolic resin of Form C (except articles made by molding synthetic phenolic resin when mixed with other materials) joined together by applying a fusible phenolic condensation product to the surfaces to be joined, which fusible product has been converted to the infusible state by means of heat or heat and pressure." These instructions were published in Treasury Decision 41895, dated December 7, 1926, and are still in effect.

5. That the Bakelite Corporation is the owner of registered Trade-Mark No. 75266, issued September 14, 1909, to Leo H. Baekeland for the name "bakelite" applied to condensation products of phenol and formaldehyde and registered Trade-Mark No. 170772, issued July 24, 1923, to the General Bakelite Co. for the name "bakelite" applied to smokers' articles.

6. That by reason of the large sale of synthetic phenolic resin, Form C, and articles made wholly or in part thereof in the United States by complainants under the name "bakelite," a good will for said product and articles has been established, and the name "bakelite" has become identified with complainants' products in the minds both of dealers and of the purchasing public.

7. That said United States Patent No. 942809 describes a method of manufacture of a phenolic condensation product in the presence of a base serving as a condensing agent, the proportion of base in the product being less than one-fifth of the equimolecular proportion of phenolic body employed. Pertinent claims of said patent are as follows (claims 7 and 8 being product claims):

1. The method which consists in reacting on a phenolic body with formaldehyde in presence of a base serving as a condensing agent, the proportion of base in the product being less than one-fifth of the equimolecular proportion of the phenolic body used.

2. The method which consists in reacting on a phenolic body with formaldehyde in presence of a base serving as a condensing agent, the proportion of base in the product being less than one-fifth of the equimolecular proportion of the phenolic body used, and separating water from the resulting product.

3. The method which consists in reacting on a phenolic body with formaldehyde in presence of a base serving as condensing agent, the proportion of base in the product being less than one-fifth of the equimolecular proportion of the phenolic body used, separating water from the resulting product, and then hardening the same.

4. The method which consists in reacting on a phenolic body with formaldehyde in presence of a base serving as a condensing agent, the proportion of base in the product being less than one-fifth of the equimolecular proportion of the phenolic body used, separating water from the resulting product, and then hardening the same by application of heat and pressure.

7. The herein described condensation product resulting from the reacting of a phenolic body and formaldehyde in presence of a base serving as a condensing agent, the proportion of base in the product being less than one-fifth of the equimolecular proportion of the phenolic body used, said product varying in its physical characteristics in accordance with the reacting conditions, and characterized by the presence of the free or combined base in quantities not exceeding the above proportions, by its insolubility in water, its solubility in alcohol

or acetone, and by its capacity for transformation under heat and pressure into a solid body insoluble in alcohol, acetone or like solvents, or in acid or alkaline reagents.

8. The herein described condensation product resulting from the reaction of a phenolic body and formaldehyde in pressence of a basic condensing agent, said condensation product characterized by its hardness, its insolubility in water and all known solvents, by its infusibility or resistance to heat, and by the presence therein of a proportion of free or combined base not exceeding one-fifth of the equimolecular proportion of phenolic body employed.

8. That infusible and substantially insoluble products of synthetic phenolic resin, Form C, containing phenol, a proportion of free or combined base less than one-fifth of the equimolecular proportion of phenolic body used, and showing a specific gravity ranging from 1.26 to 1.29 per cent, have been and are imported into the United States.

9. That the presence of phenol and the amount of base in such imported products of synthetic phenolic resin, Form C, also their specific gravity, as described in finding No. 8, is, in the absence of any disclosure by respondents of the method or methods employed in the manufacture of said imported products, satisfactory evidence that said products were made by the method disclosed in claims 1, 2, 3, and 4 of United States Patent No. 942809.

10. That the presence in such imported products of synthetic phenolic resin, Form C, of phenol, a proportion of free or combined base less than one-fifth of the equimolecular proportion of phenolic body used, a specific gravity ranging from 1.26 to 1.29, as described in finding No. 8, and the property of being infusible and insoluble, are satisfactory evidence that said imported products are the products called for by claims 7 and 8 of United States Patent No. 942809.

11. That prior to the expiration of United States Patent No. 942809, the importation into the United States and sale therein by respondents, or by any other owner, importer, consignee, or agent of either, of products of synthetic phenolic resin, Form C, made according to claims of said United States Patent No. 942809, as set forth in findings Nos. 8 and 9, constituted an unfair method of competition and unfair act tending to injure or destroy an industry efficiently and economically operated in the United States within the intent and meaning of section 316 of the tariff act of 1922, and was therefore unlawful.

12. That prior to the expiration of said United States Patent No. 942809, the importation into the United States and sale therein by respondents, or by any other owner, importer, consignee, or agent of either, of products of synthetic phenolic resin, Form C, covered by product claims 7 and 8 of said United States Patent No. 942809, as set forth in findings Nos. 8 and 10, constituted an unfair method of competition and unfair act tending to injure or destroy an industry efficiently and economically operated in the United States within the intent and meaning of section 316 of the tariff act of 1922, and was therefore unlawful.

13. That said United States Patent No. 942809 expired by limitation on December 6, 1926.

14. That United States Patent No. 1424738 describes a method of joining together two or more different colored sections of an infusible and substantially insoluble phenolic condensation product in such manner as to become substantially homogeneous without the use of mechanical means, that is to say, by the application of a fusible

phenolic condensation product to the different colored sections to be joined, which fusible product is converted to an infusible and insoluble state by means of heat or heat and pressure. Product claims of said patent are as follows:

11. A composite body comprising separately formed sections of infusible and substantially insoluble phenolic condensation products united by a bonding agent comprising a phenolic condensation product.

12. A composite body comprising sections of an infusible and substantially insoluble condensation products, said sections possessing different colors, united by a bonding agent comprising a phenolic condensation product.

13. A composite body comprising sections of an infusible and substantially insoluble condensation products, said sections possessing different colors, united by a bonding agent introduced between the sections as a fusible phenolic condensation product and converted by heat, while the sections are held in intimate contact, to an infusible condition.

14. An article, such as a cigarette holder, cigar holder or pipestem, comprising sections of infusible and substantially insoluble phenolic condensation products, said sections being of different colors, united together by a bonding agent comprising a phenolic condensation product, the composite body being suitably formed for the uniting of said sections.

15. That synthetic phenolic resin, Form C, and articles made wholly or in part thereof composed of different colored sections of synthetic phenolic resin, Form C, which appear to have been united by a bonding agent comprising a phenolic condensation product in such manner as to become substantially homogeneous phenolic condensation products without any indication of mechanical joining, have been and are imported into the United States.

16. That the joining together of said materials and articles described in finding No. 15 by the use of a phenolic condensation product as a bonding agent in such manner as to become substantially homogeneous phenolic condensation products without any indication of mechanical joining is satisfactory evidence in the absence of proof to the contrary, that said materials and articles are the products disclosed in claims 11, 12, 13, and 14 of the United States Patent No. 1424738.

17. That during the life of said United States Patent No. 1424738 in accordance with findings Nos. 15 and 16, the importation into the United States and sale therein by respondents, or by any other owner, importer, consignee or agent of either, of synthetic phenolic resin, Form C, and articles made wholly or in part thereof, composed of different colored sections of a phenolic condensation product united by a bonding agent comprising a phenolic condensation product, as described in United States Patent No. 1424738, constitutes an unfair method of competition and unfair act tending to injure or destroy an industry efficiently and economically operated in the United States within the intent and meaning of section 316 of the tariff act of 1922, and is therefore unlawful.

18. That United States Patent No. 1424738 will by the terms thereof expire on July 31, 1939.

19. That regardless of the method by which the phenolic condensation product was made, imported articles made of synthetic phenolic resin, Form C, sold by the owner, importer, consignee, or agent of either, to retail dealers have been commonly sold by such retail dealers as "bakelite" or as "imported bakelite" in the United States.

20. That the ordinary purchaser can not readily distinguish imported articles made of synthetic phenolic resin, Form C, from

articles made of synthetic phenolic resin, Form C, manufactured by the Bakelite Corporation.

21. That, regardless of the method by which the phenolic condensation product was made, imported articles made of synthetic phenolic resin, Form C, although customarily marked with the country of origin, do not have upon them or attached to them any mark, name, inscription, or label, clearly and unmistakably indicating that said imported articles are not made of synthetic phenolic resin, Form C, manufactured by the Bakelite Corporation, or otherwise reasonably distinguishing them so as to avoid confusion between the imported and the domestic articles on the part of the purchasing public.

22. That the importation into the United States or sale therein of articles made of synthetic phenolic resin, Form C, bearing no such distinguishing mark, name, inscription, or label, other than marking with the country of origin, as described in finding No. 21, has the effect of facilitating the sale of such imported articles by retail dealers as "bakelite" in violation of complainants' rights in its good will.

23. That the importation into the United States or sale therein of articles made of synthetic phenolic resin, Form C, which do not have upon them or attached to them any distinguishing mark, name, inscription, or label, clearly and unmistakably showing that such imported articles were not made of synthetic phenolic resin, Form C, manufactured by the Bakelite Corporation, or otherwise reasonably distinguishing them so as to avoid confusion between the imported and domestic articles on the part of the purchasing public, constitutes an unfair method of competition and unfair act in the importation of said articles into the United States and has the tendency to injure or destroy an industry efficiently and economically operated in the United States within the intent and meaning of section 316 of the tariff act of 1922, and is therefore unlawful.

24. That articles made of synthetic phenolic resin, Form C, have not been imported into the United States or sold therein by any respondent owner, importer, consignee, or agent of either, marked "bakelite"; and that apart from the question of violation of patent rights no such owner, importer, consignee, or agent of either has pacticed any unfair method of competition or committed any unfair act in the importation of articles made of synthetic phenolic resin, Form C, other than the failure to clearly and unmistakably distinguish such imported articles from articles made of synthetic phenolic resin, Form C, manufactured by the Bakelite Corporation, as to reasonably avoid confusion between the imported and the domestic articles on the part of the purchasing public.

25. That evidence has been adduced in this proceeding tending to establish that synthetic phenolic resin, Form C, and articles made wholly or in part thereof have been and are imported into the United States and sold therein at prices below complainants' sales prices and alleged costs of production, but the mere fact that such articles are sold at less than complainants' sales prices, or at less than their alleged costs of production, does not (apart from the question of patent rights), constitute an unfair method of competition and unfair act in the importation of said articles into the United States, or in their sale by the owner, importer, consignee, or agent of either, within the intent and meaning of section 316 of the tariff act of 1922.

Recommendations

The United States Tariff Commission makes the following recommendations to the President:

Inasmuch as the assessment of an additional duty (not exceeding 50 nor less than 10 per cent of the value of such articles as defined in sec. 402 of Title IV of the tariff act of 1922) designed to "offset such method or act" would not have offset unfair methods of competition and unfair acts in the importation into the United States and sale therein of synthetic phenolic resin, Form C, and articles made wholly or in part thereof (except articles made by molding synthetic phenolic resin when mixed with other materials) in violation of complainants' rights under United States Patent No. 942809 before its expiration by limitation December 6, 1926;

And inasmuch as the assessment of said additional duty would not offset unfair methods of competition and unfair acts in the importation into the United States and sale therein of synthetic phenolic resin, Form C, and articles made wholly or in part thereof (except articles made by molding synthetic phenolic resin when mixed with other materials) composed of different colored sections of synthetic phenolic resin, Form C, united by a bonding agent comprising a phenolic condensation product in violation of complainants' rights under United States Patent No. 1424738;

And inasmuch as the assessment of said additional duty would not offset unfair methods of competition and unfair acts consisting in the importation into the United States of articles made wholly or in part of synthetic phenolic resin, Form C, or the sale therein of said articles as "bakelite" or "imported bakelite" in violation of complainants' rights—

It is recommended that the President direct the Secretary of the Treasury to instruct customs officers as follows:

1. That the following named materials and articles imported prior to December 7, 1926, be excluded from entry into the United States: Synthetic phenolic resin, Form C, and articles made wholly or in part thereof (except articles made by molding synthetic phenolic resin when mixed with other materials) containing a proportion of free or combined base not exceeding one-fifth of the equimolecular proportion of phenolic body employed as described in United States Patent No. 942809.

2. That the following named materials and articles be excluded from entry into the United States, namely: Synthetic phenolic resin, Form C, and articles made wholly or in part thereof (except articles made by molding synthetic phenolic resin when mixed with other materials) composed of different colored sections of synthetic phenolic resin, Form C, united by a bonding agent comprising a phenolic condensation product, as described in United States Patent No. 1424738.

3. That the following named articles be excluded from entry into the United States, namely: Articles made wholly or in part of synthetic phenolic resin, Form C (except articles made by molding synthetic phenolic resin when mixed with other materials), unless it is clearly and unmistakably shown by means of a distinguishing mark, name, inscription, or label, placed upon said articles or attached thereto, that said articles are not made from synthetic phenolic resin, Form C, manufactured by the Bakelite Corporation, or

unless said articles are otherwise reasonably distinguished so as to prevent confusion between the imported and the domestic articles on the part of the purchasing public.

THOMAS O. MARVIN,
Chairman.
ALFRED P. DENNIS,
Vice Chairman.
E. B. BROSSARD,
Commissioner.

MAY 25, 1927.

CONCURRING AND DISSENTING VIEWS

Commissioner Dixon concurs in recommendation No. 3; and dissents from the finding as to Patents No. 942809 and No. 1424738, and from recommendations No. 1 and No. 2 above, as he doubts the jurisdiction of the Tariff Commission to determine the validity of contested patents which are involved in said findings and recommendations.

Commissioner COSTIGAN, dissenting:

Dissent from the foregoing opinion, findings, and recommendations of Commissioners Marvin, Dennis, and Brossard must be recorded. There are persuasive reasons for concluding that section 316 of the tariff act of 1922 was not designed, as the foregoing findings in effect hold, to enlarge patent monopolies through the aid of embargoes in cases where, as here, the validity and infringement of the patents in question have been denied and duly put in issue in the Tariff Commission's investigation, and it develops that such validity has not been upheld by the courts. The Tariff Commission is ill-equipped to give interested parties an adequate day in court in technical patent causes, and grave doubt must attend any construction of the present law which invests that commission with jurisdiction, similar to that conferred on District Courts of the United States, to try and determine such contested causes. Otherwise stated, there is scant reason to conclude that the Congress, in approving section 316 of the tariff act of 1922, empowered or intended to empower the Tariff Commission, as held in the foregoing opinion and findings, to try and determine unresolved issues with respect to the validity or invalidity and the infringement or noninfringement of United States patents; or, as affirmed in such opinion and findings, to assume the validity, though expressly challenged, of United States patents in the absence of any controlling decision with respect to such validity by a court of competent jurisdiction. If the specified findings are erroneous, the ensuing recommendations, numbered 1 and 2, of Commissioners Marvin, Dennis, and Brossard, of exclusion of goods from entry into the United States must be rejected.

Furthermore, it is my judgment and finding that the present investigation fails to establish one essential prerequisite of the granting of the relief sought by complainants, namely, that the United States industry which produces synthetic phenolic resin of Form C, and articles manufactured wholly or in part thereof, was, during the Tariff Commission's investigation, or now is, economically operated.

It is submitted that upon the present record the temporary orders of the Secretary of the Treasury of April 26, 1926, and December 7, 1926, forbidding entry of the articles therein mentioned pending the completion of this investigation, should be revoked; and the requests

of the complainants for further action in their behalf under section 316 should be denied.

MAY 25, 1927.

PROCEEDINGS SUBSEQUENT TO ADOPTION OF FINDINGS

Importers appealed to the Court of Customs (now Customs and Patent) Appeals from findings of the commission, upon questions of law, in accordance with section 316 of the tariff act of 1922. The judicial proceedings thereon were ended on October 13, 1930, by denial of a writ of certiorari for the Supreme Court of the United States to review the judgment of the Court of Customs and Patent Appeals, which held (17 C. C. P. A. 494) among other things, that—

1. Section 316 of the tariff act of 1922. is not an unconstitutional delegation of the power given to Congress by section 8 of Article I of the Constitution.

2. Where bakelite was manufactured abroad and was imported and sold in competition with a domestic product of identically the same kind and process of manufacture, which domestic product was protected by a United States patent, and under a trade name which was the registered trade-mark of the domestic producer, and at such prices that the domestic industry, efficiently and economically conducted, was being substantially injured, such acts constitute unfair methods and acts under section 316.

3. The Tariff Commission can not pass upon the validity of a patent. Where certified patents are offered in evidence in hearings before the commission, they should be taken as prima facie evidence of their validity.

4. There is substantial evidence in support of each finding of the commission.

5. Where the importer sold goods to retailers without any misrepresentation, and these retailers sold them to the public, representing them to be the goods of the domestic producer, the one who imports the goods and furnishes the means for the consummation of the fraud, will be held responsible. It was the duty of the importers to see that the imported goods were so marked that confusion as to their origin would not arise in the minds of the purchasers.

The findings and recommendations approved by the commission on May 25, 1927, and hereinbefore set forth, are herewith transmitted as the final findings and recommendations of the Tariff Commission.

HENRY P. FLETCHER,
Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
EDGAR B. BROSSARD,
JOHN LEE COULTER,
ALFRED P. DENNIS,
LINCOLN DIXON,
Commissioners.

[On November 3, 1930, the Supreme Court of the United States denied a motion for a rehearing of the petition for a writ of certiorari to review the decision of the Court of Customs and Patent Appeals, supra, which petition was denied on October 13, 1930, as set forth above.]

APPENDIX

Order of the President Prohibiting the Importation of Synthetic Phenolic Resin, Form C, with Certain Exceptions

(T. D. 44411)

Unfair competition

Synthetic phenolic resin, Form C. and articles made wholly or in part thereof, with certain exceptions, excluded from importation by the President's order of October 23, 1930.

Treasury Department, *November 26, 1930.*

To Collectors of Customs and Others Concerned:

The following order of the President, issued on October 23, 1930, under the provisions of section 316 of the tariff act of 1922 and sections 337 and 339 of the tariff act of 1930, excluding the importation into the United States of certain products mentioned in the said order is published for your information and guidance:

Pursuant to complaints filed by the Bakelite Corporation, Abse Bros., Embed Art Corporation, Kaufmann Bros. and Bondy, Reiss-Premier Pipe Co., S. M. Frank & Co. (Inc.), Wm. Demuth & Co., and L. and H. Stern (Inc.), asking relief under the provisions of section 316, Title III, of the tariff act of 1922, from alleged unfair methods of competition and unfair acts in the importation and sale of synthetic phenolic resin of Form C and articles made wholly or in part thereof, the United States Tariff Commission made an investigation and afforded appropriate hearings to parties interested under the provisions of subdivisions (*b*) and (*c*) of that section. From the findings of said commission an appeal was taken within the time and in the manner prescribed in subdivision (*c*) of said section. The Court of Customs and Patent Appeals affirmed the findings of the commission. A petition for a writ of certiorari for the Supreme Court of the United States to review the decision of the Court of Customs and Patent Appeals was denied on October 13, 1930.

By order of the President dated April 22, 1926 (T. D. 41512), under subdivision (*f*) of section 316 of the tariff act of 1922, the importation of synthetic phenolic resin of Form C, and all articles manufactured wholly or in part thereof (except articles made by molding synthetic phenolic resin when mixed with other materials), were forbidden entry into the United States. On December 6, 1926, that order was modified (T. D. 41895) pending final determination of the investigation instituted pursuant to said section, so as to exclude after December 6, 1926, only products composed of different colored sections of synthetic phenolic resin of Form C (except articles made by molding synthetic resin when mixed with other materials) joined together by applying a fusible phenolic condensation product to the surfaces to be joined, which fusible product has been converted to the infusible state by means of heat or heat and pressure.

The record of the hearings and findings of the Tariff Commission establish to my satisfaction the existence of unfair methods of competition and unfair acts within the meaning of said section 316, to wit:

1. The importation into the United States or sale therein of synthetic phenolic resin, Form C, and articles made wholly or in part thereof, as described in United States Letters Patent Nos. 942809 and 1424738 and as set forth in the findings of the United States Tariff Commission.

2. The importation into the United States or sale therein of articles made of synthetic phenolic resin, Form C, which do not have upon them or attached to them any distinguishing mark, name, inscription, or label, clearly and unmistakably showing that such imported articles were not made of synthetic phenolic resin, Form C, manufactured by the Bakelite Corporation, or otherwise reasonably distinguishing them so as to avoid confusion between the imported and domestic articles on the part of the purchasing public.

I am also satisfied and find that the importation and sale of synthetic phenolic resin, Form C, and articles made wholly or in part thereof, constitute an extreme case of unfair methods and acts as aforesaid, and that the assessment of additional duties as provided in subdivision (*e*) of section 316 would not offset such unfair methods and acts.

Section 316 of the tariff act of 1922 and sections 337 and 339 of the tariff act of 1930 contain the following provisions:

SEC. 316 (*g*). That any additional duty or any refusal of entry under this section shall continue in effect until the President shall find and instruct the Secretary of the Treasury that the conditions which led to the assessment of such additional duty or refusal of entry no longer exist.

SEC. 337 (*g*). CONTINUANCE OF EXCLUSION.—Any refusal of entry under this section shall continue in effect until the President shall find and instruct the Secretary of the Treasury that the conditions which led to such refusal of entry no longer exist.

SEC. 339. * * * No investigation or other proceeding pending before the commission at such time (other than proceedings under section 315 of the tariff Act of 1922) shall abate by reason of such repeal and reenactment, but shall continue under the provisions of this Act.

I therefore find that the interests of the United States require, and do hereby direct:

1. That the following-named materials and articles imported prior to December 7, 1926, be excluded from entry into the United States:

Synthetic phenolic resin, Form C, and articles made wholly or in part thereof (except articles made by molding synthetic phenolic resin when mixed with other materials) containing a proportion of free or combined base not exceeding one-fifth of the equimolecular proportion of phenolic body employed as described in United States Patent No. 942809.

2. That the following-named materials and articles be excluded from entry into the United States, namely:

Synthetic phenolic resin, Form C, and articles made wholly or in part thereof (except articles made by molding synthetic phenolic resin when mixed with other materials) composed of different colored sections of synthetic phenolic resin, Form C, united by a bonding agent comprising a phenolic condensation product as described in United States Patent No. 1424738.

3. That the following-named articles be excluded from entry into the United States, namely:

Articles made wholly or in part of synthetic phenolic resin, Form C (except articles made by molding synthetic phenolic resin when mixed with other materials), unless it is clearly and unmistakably shown by means of a distinguishing mark, name, inscription, or label, placed upon said articles or attached thereto, that said articles are not made from synthetic phenolic resin, Form C, manufactured by the Bakelite Corporation, or unless said articles are otherwise reasonably distinguished so as to prevent confusion between the imported and the domestic articles on the part of the purchasing public.

With regard to any merchandise the importation of which is prohibited by the President's order of October 23, 1930, supra, and which merchandise has been released heretofore under bond pending a final decision in the matter, the persons concerned should be called upon to export the said merchandise to a foreign country under customs supervision. If exportation is not effected within 30 days after notice so to do, appropriate proceedings under the bond or bonds should then be initiated without delay.

In the event that any merchandise excluded from entry by the President's order, supra, is offered for entry in your district hereafter, the entry thereof should be refused. In case of doubt as to any shipment, you should submit a report thereof to the department for instructions, together with a sample of the merchandise.

The President's order of October 23, 1930, supersedes the temporary orders of the President, the subject of T. D. 41512 and T. D. 41895.

OGDEN L. MILLS,
Acting Secretary of the Treasury.

(T. D. 44491)

Unfair competition

The President's order of October 23, 1930, excluding from importation synthetic phenolic resin, Form C, and articles made wholly or in part thereof, with certain exceptions, construed.

TREASURY DEPARTMENT,
OFFICE OF THE COMMISSIONER OF CUSTOMS,
Washington, D. C.

To Collectors of Customs and Others Concerned:

The following interpretation, which has been placed upon the President's order of October 23, 1930 (T. D. 44411), excluding from entry synthetic phenolic resin, Form C, and articles made wholly or in part thereof, with certain exceptions, is published for your information and guidance:

1. The material known as synthetic phenolic resin, Form C, in lumps, powder, sheets, rods, blocks, pieces, or other forms (not made into articles) is excluded from entry.

2. Articles made wholly or in part from synthetic phenolic resin, Form C, composed of different-colored sections of synthetic phenolic resin, Form C, united by a bonding agent comprising a phenolic condensation product as described in United States Patent No. 1424738 are also excluded from entry.

3. Articles made by molding synthetic phenolic resin when mixed with other materials can be imported without distinguishing marks.

4. All other articles made wholly or in part of synthetic phenolic resin, Form C, including articles made from laminated synthetic phenolic resin, may be imported if they are clearly and unmistakably marked with a distinguishing name, mark, inscription, or label placed on said articles or attached thereto, to show that said articles are not made from synthetic phenolic resin, Form C, manufactured by the Bakelite Corp., or if said articles are otherwise reasonably distinguished so as to prevent confusion between the imported and the domestic articles on the part of the purchasing public. If not so marked or distinguished they are excluded from entry.

F. X. A. EBLE, *Commissioner of Customs.*

Approved December 30, 1930:

OGDEN L. MILLS,
Acting Secretary of the Treasury.

○

UNITED STATES TARIFF COMMISSION

REPORT TO THE CONGRESS
ON THE
COST OF CRUDE PETROLEUM

INFORMATION RELATIVE TO
THE APPROXIMATE AVERAGE COSTS
OF CRUDE PETROLEUM DELIVERED TO
ATLANTIC SEABOARD REFINERIES
PURSUANT TO SECTION 332(F)
OF THE TARIFF ACT OF 1930

REPORT No. 4
SECOND SERIES

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UNITED STATES TARIFF COMMISSION

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CONTENTS

	Page
Summary of information	1
Part I. Interpretation of the law directing the investigation—	
1. Article or articles included in the investigation	3
2. Comparability of domestic article with like or similar foreign article	4
3. Representative period of time to be covered by the investigation	4
4. Principal competing country	5
5. Evidence of domestic and foreign cost	5
6. Principal domestic market or markets	7
7. Transportation and other charges	7
8. Collateral information	8
Part II. Cost of production of crude petroleum in Mid-Continent-Gulf area and in Venezuela, including delivery to Atlantic seaboard refineries—	
Introduction	9
A. Cost at the well in the Mid-Continent-Gulf area—	
1. Method of determination of domestic costs	11
(*a*) Use of questionnaires; comprehensiveness of returns	11
(*b*) Form of cost questionnaire used	12
2. Calculation on the basis of company-interest oil	12
3. Credit for by-products	13
4. Overhead expense	14
5. Leasehold versus development expense	14
6. Dry-hole expenses	15
7. Interest on investment	15
8. Classification of expenses	16
9. Cost of production per barrel	16
B. Cost of production of crude petroleum in Venezuela—	
1. Introduction; position of the Venezuelan petroleum industry.	
(*a*) Development and potential production in Venezuela	18
(*b*) Principal producing companies	18
(*c*) Developments outside the Lake Maracaibo field	19
(*d*) Capital invested	20
(*e*) Curtailment of production	20
(*f*) Refineries in Caribbean region	21
2. Cost of crude petroleum in Venezuela	21
C. Cost of transporting and delivering Mid-Continent-Gulf crude to Atlantic seaboard—	
1. Introduction; the method of marketing crude petroleum	23
2. The purchasing charge or marketing commission	24
3. The posted price of purchasing companies	25
4. Pipe-line charges	25
5. Tanker charges	28
D. Cost of transporting Venezuelan crude to Atlantic seaboard	28
E. Comparative costs of production and delivery	29
F. Prices of crude petroleum delivered to refineries located on the Atlantic seaboard—	
1. Prices paid for domestic crude	30
2. Prices paid for Venezuelan crude	31
3. Comparison of prices paid for domestic and Venezuelan crude	32
G. Factors affecting comparative costs and prices of domestic and Venezuelan oils—	
1. Comparative quality of oil	32
2. Difference in age of wells	35
3. Effect of curtailment of production	36
4. Relative stability of investment in the United States and Venezuela	36

Page

Part III. Other cost data—
1. Form in which the tabulation of costs has been presented--- 37
2. Weighted average costs for large and small companies, in the country as a whole---------- 37
3. Quantity of oil produced at different average costs-------- 39
4. Array of companies according to an ascending scale of costs- 40
5. Costs by States and groups of States---------- 44
6. Costs by producing districts or fields---------- 53
Part IV. General statistics of petroleum—
1. Growth of the petroleum industry---------- 70
2. The petroleum refining industry---------- 71
3. Growth of export trade in refined products---------- 72
4. Increase in imports of crude petroleum from Venezuela---- 72
5. Prices of Mid-Continent crude---------- 72

TABLES, MAPS, AND CHARTS

Part II

Map. Crude petroleum: Districts studied in obtaining cost of production in the United States----------Facing-- 11
Table 1. Average cost per barrel (company-interest oil) at wells in the Mid-Continent-Gulf area, large and small companies combined------- 17
Table 2. Venezuelan production of crude petroleum, 1917–1930 (6 months)---------- 18
Map showing oil fields in Venezuela----------Facing-- 18
Table 3. Crude petroleum: Production in Venezuela by companies, 1927–1930 (6 months)---------- 19
Table 4. Crude petroleum: Production by fields in Venezuela, 1927–1930- 19
Table 5. Crude petroleum: Unit cost of Venezuelan delivered at loading point for 1927–1929, and sales value of production for same period---- 22
Table 6. Pipe-line and tanker charges on petroleum moving to Gulf ports and Atlantic seaboard, 1927–1929---------- 27
Table 7. Crude petroleum: Transportation and other charges from Mid-Continent-Gulf area to Atlantic coast refineries, 1927–1929---------- 28
Table 8. Crude petroleum: Cost of production and of delivery to refineries on Atlantic seaboard of Mid-Continent-Gulf and of Venezuelan oil, 1927–1929---------- 29
Table 9. Prices paid for domestic crude petroleum delivered to Atlantic seaboard refineries, by districts in which produced, 1927–1930 (6 months)---------- 30
Table 10. Costs and prices of Mid-Continent-Gulf oil including delivery to Atlantic seaboard refineries---------- 31
Table 11. Prices paid for Venezuelan crude petroleum (Maracaibo Basin) delivered to Atlantic seaboard refineries, 1927–1930 (6 months)------- 32
Table 12. Costs and prices of Venezuelan (Lake Maracaibo) oil--------- 32
Table 13. Prices, including transportation and delivery, paid by Atlantic seaboard refineries for Mid-Continent-Gulf, and for Venezuelan (Lake Maracaibo) crude petroleum---------- 32
Table 14. Typical yields of finished products, domestic crude—Atlantic coast refineries---------- 34
Table 15. Typical yields of finished products, Venezuelan crudes—Atlantic coast refineries---------- 35

Part III

Table 16. Average cost per barrel at wells in the United States, large and small companies combined, by items---------- 39
Table 17. Percentage of oil reported which was produced within cost limits specified---------- 40
Table 18. Percentage of oil reported which was produced at or below the cost specified---------- 40
Figures I, II, and III. Crude Petroleum: Cost of production in the United States, 1927–1929---------- 41–43
Figures IV to IX, inclusive. Crude Petroleum: Cumulative cost curve, large and small companies, 1927–1929---------- 45–50

Page

Table 19. Unit costs and sales value by States; averages for the three years, 1927–1929 51
Table 20. Crude-oil production: Unit cost and unit sales price by districts, Group I 55
Table 21. Crude-oil production: Unit cost and unit sales price by districts, Group II 58
Table 22. Crude-oil production costs and sales prices by gravity in selected districts 61
Table 23. Average cost per barrel at wells in the United States, large and small companies combined (based on company and royalty oil) 62
Table 24. Petroleum: Unit cost of production and sales value by States, 1927–1929, Group I 63
Table 25. Petroleum: Unit cost of production and sales value by States, 1927–1929, Group II 66

PART IV

Table 26. Production of crude oil in the world, the United States and Venezuela, and natural gasoline in the United States, quantities, 1901 to 1929 73
Table 27. Production of crude petroleum by countries, quantities, and percentage distribution, 1926 to 1929 73
Table 28. United States production of crude petroleum by fields; quantities, 1901 to 1929 74
Table 29. United States production of crude petroleum by States, quantities, 1901 to 1929 74
Table 29a. Relation of demand to supply in the United States 76
Table 30. Summary of value data regarding petroleum and its products, 1901 to 1929 78
Table 31. Summary of average values per barrel, 1901 to 1929 78
Table 32. Summary of import statistics; quantities, values, and unit values, 1910 to 1929 79
Table 33. Imports from the several countries; quantities and values, 1927, 1928, and 1929 80
Table 34. Exports of petroleum and its products; quantities and values, 1927, 1928, and 1929 80
Table 35. Exports of crude oil and principal refined products to the principal countries; quantities, 1928 and 1929 81
Table 36. Census statistics of petroleum refining industry, 1899 to 1929 81
Table 37. Products of the petroleum refinery industry; quantities and values, 1925, 1927, and 1929 82
Table 38. Petroleum refining: Consumption of crude oil and natural gasoline, and output of major products, by region of location of refineries; quantities, 1928 and 1929 82
Table 39. Production, imports, exports, stocks and domestic demand of gasoline, kerosene, gas oil, and fuel oil, and lubricating oils; quantities, 1921 to 1930 83
Table 40. Percentage yield of major refined products, 1920 to 1929 83
Table 41. Monthly statistics of crude petroleum and of exports and imports of refined liquid products; quantities, 1927 to 1930 85
Table 42. Production, imports, exports, stocks and domestic demand of gasoline, illuminating oil, gas oil and fuel oil, and lubricating oil, by quarters, 1927 to 1930; quantities 87
Table 43. Prices of crude and refined products 88
Table 44. Average price per barrel paid for crude petroleum at the wells, 1924–1928, by States 88
Table 45. Value of crude petroleum at the wells, 1928 and 1929 89
Table 46. General summary table 89

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, February 7, 1931.

The PRESIDENT OF THE SENATE,
Washington, D. C.

SIR: In compliance with the provisions of section 332 (f) of the act of Congress, approved June 17, 1930, I have the honor to transmit herewith the report of the United States Tariff Commission certifying the approximate average cost per barrel to the oil refineries located on the Atlantic seaboard of crude petroleum delivered to them from the oil fields of the United States during the three years preceding 1930, and the present approximate average cost per barrel of crude petroleum from Lake Maracaibo, Venezuela, delivered to the same points.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

LETTER OF SUBMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, February 7, 1931.

To the SPEAKER OF THE HOUSE OF REPRESENTATIVES.
To the PRESIDENT OF THE SENATE.

The United States Tariff Commission herewith submits its report and certifies the results of its investigation to ascertain the approximate average cost per barrel to the oil refineries located on the Atlantic seaboard of crude petroleum delivered to them from the oil fields of the United States during the three years preceding 1930, and the present approximate average cost per barrel of crude petroleum from Lake Maracaibo, Venezuela, delivered to the same points, as directed by section 332 (f) of Title III of the tariff act of 1930.

Respectfully submitted.

HENRY P. FLETCHER,
Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
JOHN LEE COULTER,
ALFRED P. DENNIS,
EDGAR B. BROSSARD,
LINCOLN DIXON,
Commissioners.

COST OF CRUDE PETROLEUM

SUMMARY OF INFORMATION

The commission is directed by section 332 (f) of the tariff act of 1930 to ascertain the approximate average cost per barrel to the oil refineries located on the Atlantic seaboard of crude petroleum delivered to them from the oil fields of the United States during the three years preceding 1930 and the present approximate average cost per barrel of crude petroleum from Lake Maracaibo, Venezuela, delivered to the same points. The instructions contained in this section are subject to more than one interpretation, and the various possible interpretations are fully discussed in the body of this report.

The average cost of production of crude petroleum at the well, for 1927, 1928, and 1929, in the States of Oklahoma, Texas, Arkansas, Kansas, Louisiana, and New Mexico, from which States is obtained the great bulk of the domestic oil refined along the Atlantic seaboard, was $1.10. The cost of transporting this oil to the Atlantic seaboard was 88 cents, including pipe-line charges to Gulf ports, a purchasing charge of 10 cents per barrel, and tanker charges from Gulf ports to the Atlantic seaboard. The total cost of the oil delivered at Atlantic seaboard was, therefore, $1.98 per barrel. This cost is computed on the basis of "company interest oil," i. e., royalty oil has not been included in total production, and includes interest at 6 per cent on the investment of the companies.

The cost of production of oil in the Maracaibo Basin of Venezuela, in 1929 (section 332 (f) calls for "present" cost and 1929 is the latest year for which costs were available) was 56 cents at the point of transfer to ocean tankers. Transportation and other charges necessary to deliver the oil to the Atlantic seaboard were 23 cents, making a total of 79 cents, cost delivered at Atlantic seaboard refineries. This figure also is computed on the basis of company interest oil and includes interest at 6 per cent on the investment of the companies.

The commission has made additional comparisons of the domestic and Venezuelan costs, on bases which might be indicated by other interpretations of section 332 (f). For example, it has compared the 3-year weighted average cost in the United States and in the Maracaibo Basin, Venezuela. On this basis the domestic delivered cost is $1.98, the same figure as that used above, while the Venezuelan is $0.89, made up as follows: Cost at the point of transfer to ocean tankers, $0.65; transportation and other charges, $0.24.

"Delivered cost to the Atlantic seaboard refineries" might also be interpreted as meaning the delivered prices which the refiners pay, since the price paid for crude oil by those who purchase in the open market is tantamount to the cost to them. The commission, therefore, ascertained not only cost at the well plus transportation and other charges to the Atlantic seaboard, as summarized above, but

also the delivered prices paid for both domestic oil from all fields and oil from the Maracaibo Basin, Venezuela. The 3-year (1927–1929) weighted average price paid for domestic crude from the Mid-Continent-Gulf area by the Atlantic seaboard refiners was $2.06 and for the Venezuelan crude $1.10. The price paid in 1929 for domestic crude from the Mid-Continent-Gulf area was $2.03 and for Venezuelan crude $1.02.

It is necessary to point out that in comparing the costs of domestic and Venezuelan crudes, articles are being compared which are not similar. The domestic crude, from the Mid-Continent and adjacent areas, the cost of which is here compared with the Venezuelan crude, had an average gravity of approximately 33°, Baumé scale, while the foreign had a gravity of 18° to 19°. The domestic crude refined along the Atlantic seaboard during the period covered yielded, largely by cracking processes, 36 to 44 per cent of gasoline, while the Venezuelan yielded 9 to 12 per cent gasoline and 75 to 83 per cent of fuel oil. (See Tables 14 and 15 showing typical yields of finished products from domestic and Venezuelan crudes.) Gasoline has a much higher unit value than fuel oil.

The difference in quality of domestic as compared with Venezuelan crude is reflected in the wide difference in the price paid by the Atlantic coast refineries. The commission has also ascertained the value of the product derived from the two kinds of crude petroleum by the Atlantic coast refineries during each year. In 1929 the value of the products obtained from the domestic crude used was $2.97 per barrel, and from the Venezuelan crude, $1.15 per barrel. There is, however, a decided difference in the costs of refining, the average expenditure per barrel for refining processes being much higher in the case of the domestic than of the Venezuelan crude. The average costs of refining were not, however, ascertained, so that the respective values of the products of the crude over and above refining costs could not be determined.

The commission has ascertained the cost of production and the sales value of crude petroleum in all the other principal producing regions in the United States, as well as in the Mid-Continent-Gulf area. The costs of production of the domestic crude have been tabulated in several different ways in order to afford as much information as possible on various phases of the industry. Costs have been tabulated by large and small companies, by States and groups of States, by fields, by cost groups, and by gravities of the oil produced. Tables showing details for the constituent elements of cost will be found in Part III.

In addition to the costs of production on different bases, considerable general information is herein given, on various phases of oil production in both the United States and Venezuela, and full statistical data are shown on production, imports, exports, stocks, prices, and other aspects of the petroleum situation.

PART I

INTERPRETATION OF THE LAW DIRECTING THE INVESTIGATION

Section 332 (f) of the tariff act of 1930 reads as follows:

> The Tariff Commission is hereby directed, within eight months from the passage of this act, to ascertain the approximate average cost per barrel to the oil refineries located on the Atlantic seaboard of crude petroleum delivered to them from the oil fields of the United States during the three years preceding 1930, and the present approximate average cost per barrel of crude petroleum from Lake Maracaibo Venezuela, delivered to the same points. Such relative costs shall be immediately certified to the Speaker of the House of Representatives and to the President of the Senate for the information of the Congress.

The Tariff Commission has attempted in this report to cover not only the specific requirements of the law, but also many of the other pertinent factors which throw light upon the tariff problems respecting petroleum. It is believed that information of the kind which is pertinent for the President in an investigation under the provisions of section 336 of the tariff act of 1930 will likewise be useful to the Congress in any consideration of the tariff upon petroleum. The investigations under this section review a number of important phases of each subject, such as the following:

(1) Article or articles included in investigation.
(2) Comparability of domestic article with like or similar foreign article.
(3) Representative period of time to be covered by investigation.
(4) Principal competing country.
(5) Evidences of domestic and foreign costs.
(6) Principal domestic market or markets.
(7) Transportation and other charges.
(8) Collateral information.

1. Article or Articles Included in Investigation

Section 332 (f) specifically limits the investigation to "crude petroleum." Although the commission has restricted its investigation almost entirely to that product, both because of the wording of the resolution and the time limitation for the completion of the report, some consideration has been given to the uses made of crude petroleum and to the products derived from it. If the Congress should decide to impose a duty on crude petroleum, consideration no doubt will be given to the question of at least compensatory duties on the finished products of petroleum. With this in mind, data are included in the supplemental section of the report with reference to the domestic production, consumption, imports, and exports of petroleum products. Some of these data regarding products may have significance in connection with the question of the duty on crude oil itself.

2. Comparability of Domestic Article with Like or Similar Foreign Article

There are many different grades or qualities of crude petroleum both in the output of the United States and in that of foreign countries. Some oils are of very different grade from others, contain different kinds and amounts of impurities, and command very different prices. The most important differences are those which affect the relative amounts of the finished products which can be derived from the crude oil by commercially practicable methods. Variations in the "gravity" of petroleum, and the "base," whether asphalt or paraffin, are the most obvious characteristics which determine the amount of the important derived products, such as gasoline, lubricating oils, fuel oils, and paving materials. By reason of differences in these and other respects crude oils from different areas may command widely different prices.

Venezuelan petroleum has an asphalt base, and the bulk of the output has a gravity of about 18° to 19° (Baumé test used throughout this report). The natural gasoline content (that is, the proportion derived without "cracking" processes) is about 8 per cent, and the sulphur content is about 2.5 per cent.

Domestic petroleums are of paraffin, asphalt, and mixed bases, and the average gravity of all domestic crude oil is about 33°, with an average natural gasoline content of about 24 per cent. The sulphur content of most domestic oils is relatively low.

In view of the above facts the commission has given special consideration to the question of the comparability of imported and domestic oils in the cost comparison presented in the body of the report.

Differences in quality do not affect costs of production to the same extent in the oil industry as in the case of many other commodities. The costs of exploration, development, drilling wells, and lifting the oil to the surface may be identical, although the quality of the product, and therefore its value, is widely different. There is, however, a connection in its broad sense between the cost of producing petroleum and its quality. The quality of the crude oil to be obtained largely determines how much the producer can afford to pay in the form of capital investment and current operating expenses to get the oil out of the ground. If the oil in a given area is known to be of low grade producers will go to the expense of drilling wells there only if there is reason to expect a large average output per well which will bring down the average cost per barrel. On the other hand, high-grade oil will justify drilling if the output per well is small and costs per barrel consequently high.

3. Representative Period of Time to be Covered by the Investigation

Section 332 (f) directs the commission to ascertain costs of crude petroleum in the United States during the 3-year period preceding 1930 and the "present approximate average cost" from Lake Maracaibo. In all of the commission's investigations cost data are sought for a sufficiently long period to be representative of the average conditions of the industry, and studies are rarely confined to the period of a single year unless it is found that the particular year reflects approx-

imately average conditions. For this reason the commission has obtained cost data for the 3-year period ended with 1929 for both the domestic and Maracaibo Basin oil fields. The cost by years was shown separately, however, so that a comparison may be made upon the Venezuelan costs "at the present time," i. e., during 1929—the last full year for which cost data were available at the time of the enactment of the law.

4. Principal Competing Country

Venezuela was the principal source of imports of petroleum into the United States during the 3-year period under consideration. The law, however, specifies that costs shall be obtained "from Lake Maracaibo, Venezuela." The term "Lake Maracaibo" has been interpreted by the commission as meaning the Maracaibo Basin. Oil is produced in that basin in three different areas, namely, from the area under the lake bed itself; from a strip about 3,300 feet wide along the margin of the lake, largely under shallow water; and from other oil-producing lands adjacent to or near the lake in the same basin. These three separate areas in the basin are chiefly under the control of four different producing organizations. It is obvious, therefore, that consideration should be given to the entire basin, which contributes the larger portion of all crude petroleum produced in Venezuela, rather than to attempt to compile data only for the production of the lake bed.

5. Evidence of Domestic and Foreign Cost

(*a*) *Interpretation of the law.*—The law requires the commission to "ascertain the approximate average cost per barrel to the oil refineries located on the Atlantic seaboard of crude petroleum delivered to them from the oil fields of the United States * * * and * * * from Lake Maracaibo." This wording might be interpreted to mean that the investigation is merely to ascertain what the refineries on the Atlantic seaboard have to pay for oil from the United States and from Lake Maracaibo, respectively. That is, "cost to the refineries" might be taken as meaning the price delivered at the Atlantic seaboard. The commission has not, however, so interpreted the passage quoted. It has assumed that the purpose of the law is to ascertain the cost of production at the wells plus transportation and other charges to the seaboard refineries, for both the Venezuelan and the domestic oils.

This interpretation is supported by the discussion of the subject when the bill was before the Senate. Speaking with reference to section 332 (f), Senator Thomas stated:

> This amendment merely authorizes and directs the Tariff Commission to give the Congress some information as to the cost of producing petroleum at home and abroad.

However, the commission has also determined prices, including costs of delivery, paid by the refineries on the Atlantic seaboard for both domestic and Venezuelan crude oil. The wide difference in these prices, which appear in the report, reflects the wide difference in quality, and in the relative quantities of the different finished products which are obtained.

Much of the oil reaching the Atlantic refineries, both of domestic and foreign origin, is not bought and sold in the open market, but is

sent to the refineries by intercompany transfers. Enough is sold, however, to refineries which have no producing subsidiaries, to afford a check on the intercompany transfers, and to indicate that they are made at about the market price.

(b) *Mid-Continent-Gulf crude the basis of comparison.*—The most significant comparison for the purpose of section 332 (f) of the tariff law, as interpreted by the commission, is between Mid-Continent-Gulf oil and Venezuelan oil. The basic tables in this report show the cost of production at wells in the Mid-Continent-Gulf area and the cost of production and delivery charges from that area to the Atlantic coast refineries, in comparison with the cost of production in the Maracaibo Basin of Venezuela and of transportation and delivery to the same refineries.

The Atlantic coast refineries, to be sure, use crude petroleum from all the great producing regions of the United States except the Rocky Mountain region. If it were possible to do so, the commission would have undertaken, in conformity with a strict interpretation of section 332 (f), to ascertain the cost at the wells of the particular crude oil actually refined by the Atlantic coast refineries. It is, however, obviously impossible to segregate, for any given crude-oil-producing region, the cost of producing that part of its output which goes to Atlantic coast refineries from that part which is used otherwise. The only practicable method is to ascertain the average cost of production of all crude oil in a given region.

In the case of the Mid-Continent-Gulf area, the average cost of producing all crude oil is unquestionably substantially the same as the average cost of producing that part of the crude which goes to the Atlantic coast refineries. The same is not true of the other oil regions. The difference arises from the facts (*a*) that the great bulk of the domestic crude refined at the Atlantic seaboard is from the Mid-Continent-Gulf area and very little from other areas; (*b*) that the consumption by the Atlantic coast refineries represents a very considerable fraction (about one-sixth) of the total production of the Mid-Continent-Gulf area, while these refineries use only a very small proportion of the total output of the California region; and (*c*) that the crude received by the Atlantic coast refineries from the Mid-Continent-Gulf area represents oil from most of the scattered fields and pools of that area and is in quality a fair average sample of the total production, which is not the case as regards the oil received by these refineries from California and the eastern region.

The following statement [1] shows for the year 1929, the sources of the domestic crude oil received by the Atlantic coast refineries, from which the dominance of Mid-Continent-Gulf crude is obvious:

Region	Quantity (barrels)	Per cent of total
Mid-Continent-Gulf	101,237,000	57.17
California	667,000	.38
Illinois and Appalachian	5,847,000	3.30
Foreign	68,995,000	38.97
Withdrawn from foreign crude stock	317,000	.18
Total	177,063,000	100.00

[1] Source: U. S. Dept. of Commerce, Bureau of Mines Information Circular 6396, Sources and Distribution of Major Petroleum Products, Atlantic Coast States, 1929.

The following statement [1] compares the receipts of crude from the various regions by the Atlantic coast refineries with the total production of these regions in 1929:

Region	Production	Receipts by Atlantic coast refineries	
		Amount	Per cent of production
	Barrels	*Barrels*	
Mid-Continent-Gulf	641,994,000	101,237,000	15.77
California	292,534,000	667,000	.002
Illinois and Appalachian	47,136,000	5,847,000	12.40
Rocky Mountain	25,652,000	----------	0
Other States	7,000	----------	0
Total	1,007,323,000	107,751,000	10.70

6. Principal Domestic Market or Markets

The American markets for the crude petroleum produced in the United States are widely scattered, including refining centers in California, along the Gulf coast, along the Atlantic seaboard, and in the interior of the country. The principal American market for the crude petroleum imported from Venezuela, however, is along the Atlantic seaboard. Section 332 (f) prescribes that the commission shall ascertain costs per barrel "to the oil refineries located on the Atlantic seaboard." Consequently, no attempt was made to ascertain costs of petroleum delivered from the producing areas to refineries in other parts of the United States, or the cost of moving the finished products from the refineries to the consuming areas.

The Atlantic seaboard is an important area of refining of both domestic and Venezuelan petroleum. In 1929 the total quantity of crude oil put through stills along the east coast was 172,000,000 barrels out of 988,000,000 barrels for the country as a whole. The approximate quantity of domestic petroleum refined in that area during that year was about 106,000,000 barrels, and of imported about 66,000,000 barrels, most of the imported oil being from Venezuela. Much of the oil produced along the Gulf coast is refined there, but an important part of the finished products goes to the Atlantic coast for marketing, and therefore is affected indirectly by the competition of the crude petroleum of foreign origin refined in the East and of the finished products imported.

7. Transportation and Other Charges

The commission has based its calculation of transportation cost from the Mid-Continent-Gulf area and from Venezuela respectively to the Atlantic seaboard upon the charges of the carriers, not on the actual cost to these carriers for performing the transportation service. In the case of producers of crude oil who do not own pipe lines or tank vessels, the cost of delivery to the eastern refineries, by whomsoever paid, is the rate paid to the transportation agencies. A large majority of the producers, in point of number, in practice use this means of transportation.

[1] Source of production figures, U. S. Bureau of Mines, Annual Petroleum Statement, No. P. 69, Sept. 29, 1930.

On the other hand, a number of the large companies engaged in producing or refining crude oil operate pipe lines and tank vessels, either directly or through closely affiliated concerns. In such cases the cost of oil delivered to the Atlantic seaboard might be considered as the cost of production at the well plus the cost of operation of the transporting agencies. The commission has not deemed it feasible, however, in the limited time at its disposal, to investigate the actual cost of transporting the oil to the Atlantic seaboard as distinct from the regular charges for transportation by pipe lines and steamers. The commission has determined the actual amounts paid in purchasing, pipe-line and tanker charges on a large proportion of the crude oil which moved from the Mid-Continent-Gulf area to the Atlantic seaboard during the period under consideration.

8. Collateral Information

The commission has added to this report statistical information which was deemed relevant to the consideration of a duty on crude petroleum. These data will be found in Part IV.

PART II

COST OF PRODUCTION OF CRUDE PETROLEUM IN THE MID-CONTINENT-GULF AREA AND IN VENEZUELA, INCLUDING DELIVERY TO ATLANTIC SEABOARD REFINERIES

INTRODUCTION

In order to appreciate the significance of figures showing the cost of production of Mid-Continent-Gulf oil and the delivery thereof to the refineries on the Atlantic seaboard, it is necessary to note the position of the Mid-Continent-Gulf area among the oil producing regions of the United States, and the position of the Atlantic seaboard area in the refining industry and in the consumption of refined petroleum products.

The Mid-Continent–Gulf petroleum region, comprising the States of Kansas, Arkansas, Louisiana, Oklahoma, Texas, and New Mexico, is much the largest source of crude petroleum in the United States. It produced in 1929, 641,994,000 barrels, out of a total for the United States of 1,007,323,000 barrels. It is the only crude oil producing region which is able to send the greater part of its output, either in crude or finished form, to consuming regions of the United States outside of its own borders. The crude oil of the California region, which ranks second to the Mid-Continent-Gulf, is for the most part refined in California itself, and the great bulk of the products thereof are consumed on the Pacific coast, where, on account of the scarcity of coal, the consumption of fuel oil is much larger in proportion to the population than in other parts of the country. California sends a certain proportion of its output, either in crude or finished form, by water to the Atlantic Seaboard, but the quantities sent are much smaller than those originating in the Mid-Continent-Gulf region. There is also considerable exportation of products of California crude oil to the Orient and to South America.

The other two petroleum producing regions are of less importance and their output, whether as crude or as refined products, is mostly consumed within their own borders. The Rocky Mountain region, with oil production in the States of Colorado, Wyoming, and Montana, has as yet a relatively small output, the great bulk of which is consumed in the Rocky Mountain area itself, which, because of its sparse population, finds the production of these wells substantially sufficient for its requirements.

The eastern petroleum production is from widely scattered fields, the most important of which are in the States of West Virginia, Pennsylvania, Ohio, Kentucky, and Illinois. Because of the dense population of this region, the output is far from being sufficient for its requirements, and it draws large quantities, either of crude oil or of refined petroleum products, from the Mid-Continent-Gulf area.

There is no production of crude petroleum along the eastern Atlantic coast. The wells nearest to the coast are in western Pennsylvania and western West Virginia, and, as just stated, these wells have no

surplus to be sent eastward, although on account of the high quality of the oil certain quantities of the refined products derived from it, especially lubricants, are marketed along the seaboard and in other parts of the country. The great population along the Atlantic coast is primarily dependent on petroleum either from the Mid-Continent-Gulf area or from Venezuela.

The consumption of petroleum products is nation-wide. That of gasoline, the most important single product in value and, beginning with 1929, in quantity, is more or less proportional to the number of automobiles, which in turn is roughly proportional to the population. The consumption of fuel oil, until 1929 the largest product in terms of quantity, is more irregularly distributed, being affected greatly by the relative abundance of coal, water power, and, recently, natural gas.

The location of the refineries which transform crude oil into products ready for consumption is not determined exclusively by the geography of the production of crude oil, nor exclusively by the geography of consumption of finished products, but by a combination of these factors. The location of refineries, moreover, is greatly influenced by the fact that transportation by pipe line and transportation by water are both very much cheaper than transportation by rail. The pipe line lends itself especially to the movement of crude oil, although to some extent refined products are also transported in that way for considerable distances.

The crude oil of the California, Rocky Mountain, and eastern oil regions is for the most part refined at plants located within these regions respectively, and fairly close to the oil wells. The situation is different with respect to crude from the great surplus area of the Mid-Continent-Gulf States. This is refined: (1) By plants in or near the oil fields themselves; (2) by plants in the north central section of the country (for example, near Chicago and near St. Louis), which has little or no crude production; these refineries receive the Mid-Continent-Gulf crude by pipe line; (3) by plants along the Gulf of Mexico, fairly close to the oil regions and accessible to cheap water transportation; and (4) by plants along the eastern Atlantic seaboard, principally near Philadelphia, New York, and Baltimore, which receive the crude chiefly by tank vessels.

In view of the geographic location of crude-oil production, of refineries, and of the consumption of petroleum products, the competition of Venezuelan crude oil and its products naturally has to do chiefly with the Mid-Continent-Gulf producing region, the Gulf and eastern Atlantic refining regions, and the eastern Atlantic consuming region. At least two-thirds of the Mid-Continent-Gulf crude is refined either along the Gulf of Mexico or along the Atlantic seaboard. The Gulf refineries ship large quantities of finished products by water to the eastern Atlantic seaboard, while the products of the Gulf crude refined on the Atlantic seaboard itself are largely consumed in that region. Apart from the interior, which is less accessible to imported oil from the standpoint of transportation, the North Atlantic seaboard States constitute the only major region which requires petroleum from outside its own borders. The Venezuelan crude naturally seeks this area.

In order to complete the picture of the geography of petroleum, it is necessary to note that the United States is a large exporter of

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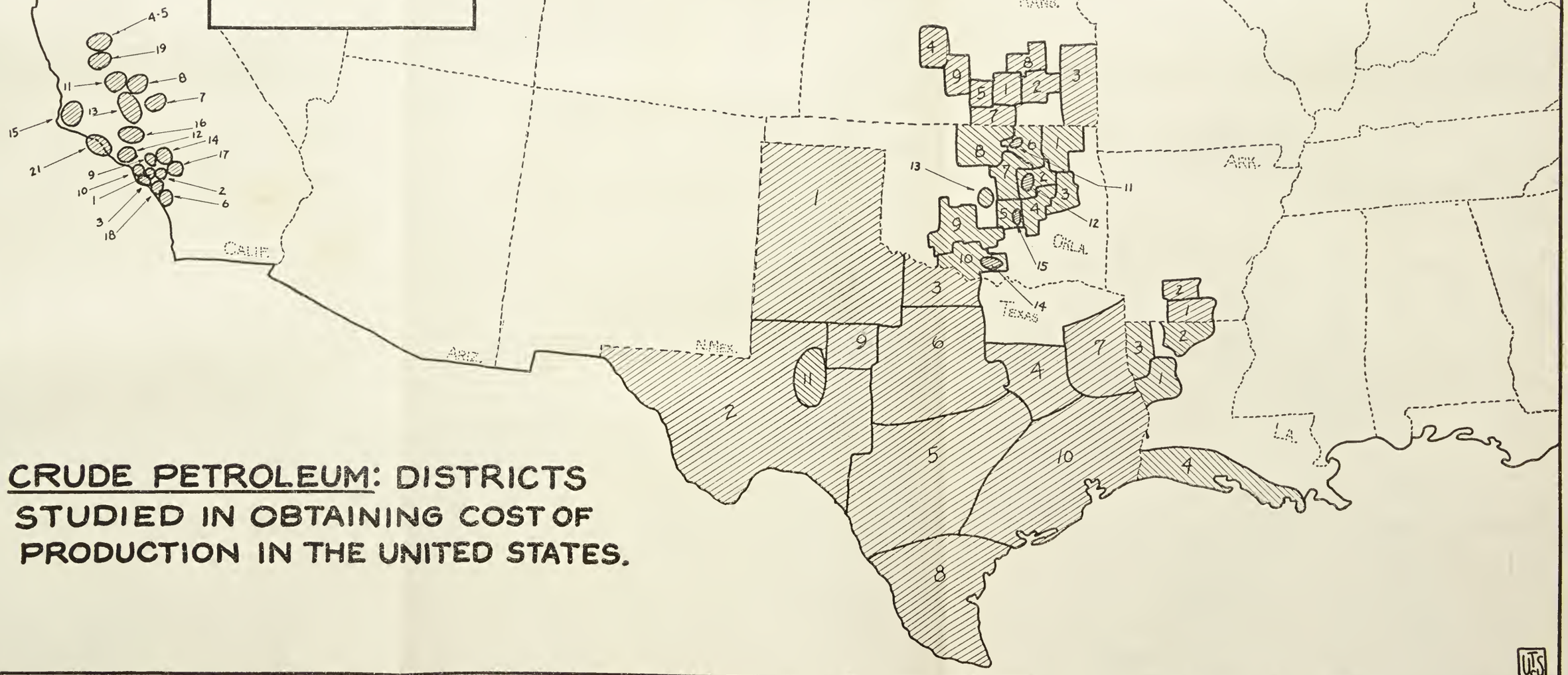

CRUDE PETROLEUM: DISTRICTS STUDIED IN OBTAINING COST OF PRODUCTION IN THE UNITED STATES.

38855—31. (Face p. 11)

petroleum products. Apart from the exports from the Pacific coast to the Orient and to South America, our foreign sales are made chiefly from the Gulf and Atlantic coast refineries.

A. COST AT THE WELL IN THE MID-CONTINENT-GULF AREA

1. Method of Determination of Domestic Costs

The requirement of the law, that the investigation should be completed and the report made in eight months, imposed upon the Tariff Commission the necessity of adopting the most expeditious method of cost finding. The size of the petroleum industry and the large number of producers, moreover, precluded any minute or extended examination of the books of the producers in the time allotted. The method adopted was one which was considered most convenient from the point of view of those who were asked to submit their records and at the same time was considered adequate from the standpoint of accuracy.

(*a*) *Use of questionnaires; comprehensiveness of returns.*—Cost schedules were mailed to 113 producers (including those in other fields as well as in the Mid-Continent-Gulf area), each of whose annual output was listed as 1,000,000 barrels or more. The output of these large producers constitutes about two-thirds of the United States production. Several other producers were subsequently added to this first list, whose output was less than a million barrels each.

Agents of the commission were sent to the oil producing regions to confer with the officials and employees of these larger companies and assist in the work of filling out the schedules. Nearly all of these companies submitted the information requested by the commission. Ninety-six companies, producing 467,114,613 barrels of company-interest oil (that is, that part of the output which becomes the property of the producing concern, excluding that turned over to the land owner as royalty), reported upon the business of 1927; 105 companies, producing 478,573,105 barrels of company-interest oil, reported upon the business of 1928; and 109 companies, producing 558,804,248 barrels of company-interest oil, reported upon the business of 1929. The royalty oil included in the returns amounted to 73,212,275 barrels for 1927; 74,872,556 for 1928; and 89,622,289 for 1929.

In order to secure a sample of the costs of the smaller producers, cost schedules were mailed to an additional list of 500 companies and individuals (including those in all the oil regions) listed as producing less than 1,000,000 barrels a year. Half of these additional schedules were sent to companies listed as having a production between 100,000 and 1,000,000 barrels a year, and half to those listed as having a production of less than 100,000 barrels a year. These producers were selected at random—but with regard to geographical distribution—from a list of 2,500 producers secured from the petroleum division of the Bureau of Mines. Schedules were filled out for the year 1927 and forwarded to the commission by 139 of those producers, with an output of 21,492,448 barrels of company-interest oil; by 155 producers, with an output of 20,967,832 barrels of company-interest oil for 1928; and by 167 producers with an output of 20,096,408 barrels of company-interest oil for 1929. The royalty oil included in these returns

amounted to 3,144,259 barrels for 1927; 3,025,917 barrels for 1928; and 3,088,627 barrels in 1929.

The proportion of the entire United States output represented by the combined production of company-interest oil of the large and small companies reporting to the commission, was, for 1927, 54 per cent; for 1928, 55 per cent; and for 1929, 57 per cent. If the royalty oil were added to the company-interest oil, the proportions to total domestic output would be 63 per cent for 1927; 64 per cent for 1928; and 67 per cent for 1929. For the Mid-Continent-Gulf area, used as the basis of comparison of costs with those of Venezuelan oil, the proportion of output covered by the returns was even larger than for the country as a whole.

The figures submitted by the reporting companies, large and small, were tabulated by the commission, only a negligible number being rejected and then only because of obvious and glaring errors.

(*b*) *Form of cost questionnaire used.*—A very condensed and simplified cost schedule was used in order to facilitate the work of the companies in furnishing the desired information, and to expedite the investigation. The items called for on this schedule were as follows:

1. Name of company.
2. Name of pool, field, district, or zone.
3. State in which located.
4. Approximate gravity of oil.
5. Base—whether asphalt, paraffin or mixed.
6. Production (barrels)—
   - (*a*) Gross.
   - (*b*) Company interest.
   - (*c*) Other interest.
7. Expenses—
   - (*a*) Depletion of leasehold cost.
   - (*b*) Amortization of tangible development cost.
   - (*c*) Intangible development cost.
   - (*d*) Current operating costs.
   - (*e*) General and administrative expense.
8. Income—
   - (*a*) Sales of oil, barrels, and amount received.
   - (*b*) Sales of gas, amount received.
   - (*c*) Miscellaneous revenue.

Supplemental information was obtained with reference to the investment of the companies and interest at 6 per cent was computed on the value of the assets.

2. Calculations on the Basis of Company-interest Oil

It is customary, though not universal, for the ownership of oil lands to remain in other hands than those of the operating concerns which produce the oil. In such cases a payment is made to the owner of the lands, usually in the form of a proportion of the oil produced. The most customary royalty in the United States is one-eighth of the output. In Venezuela the royalty is about 9 per cent of the output.

The commission, for the general purposes of this report, has calculated average unit costs both in the United States and in Venezuela, by dividing the total costs of the producing concerns by the quantity of company-interest oil, that is, excluding royalty oil. That is, generally speaking, the divisor in ascertaining the average cost per barrel is, in the United States, seven-eighths of the oil produced, and in Venezuela, 91 per cent of the oil produced. This method of cal-

culating average costs is that customary in the trade and appropriate for most economic purposes.

The amount of royalty is, on the average, slightly more than one-eighth. It ranges, however, from a small fraction to as much as 47 per cent. When the percentage going to the royalty owner is as high as the latter figure it indicates that the producer is developing the property on a share basis, as in such cases nothing is reported for leasehold costs.

Another possible method of calculating average cost is to divide the costs reported by the producing companies by the total quantity of oil produced, including royalty oil. This procedure necessarily gives an average such that the producing companies could not sell at that cost without incurring a loss.

Still another method is to calculate the value of royalty oil at current market prices, add this to the costs of the producing companies, and divide the sum by the total quantity of oil produced, including royalty oil. Under this method the unit cost will vary according to the market price of the royalty oil. If the price of royalty oil is greater than the cost of production, the average thus computed will be higher than the average based on company-interest oil alone; if the market price is below the cost of production, the reverse will be the case.

For general purposes this method of calculating costs is therefore less significant than that based on company oil alone. If, however, it is desired to determine what part of the costs of producing oil consists of payment to landowners (whether in the form of a share of the oil produced or in the form of purchase price paid for leaseholds) this method is the necessary one. It has therefore been used for this particular purpose in the present report. (See Part III.)

3. Credit for By-products

In addition to the production of crude oil, large companies often operate gas properties, engage extensively in buying and selling crude oil, and carry on other operations quite extraneous to a strictly crude-oil producing enterprise. The smaller producers, on the other hand, have less diversified operations, and many of them engage only in crude-oil production. The questionnaires submitted to the companies by the Tariff Commission called for careful separation of the expenditures and receipts between the crude-oil producing business and other collateral enterprises. Natural gas, however, is frequently a by-product of the oil industry rather than a separate enterprise.

In all cases where oil flows freely to the surface, gas is produced coincidentally with the crude petroleum. Some companies utilize this gas in various ways while others permit it to flow as waste into the air. Natural gas is utilized extensively in some States for producing carbon black. It seems to be the usual practice in these States to sell the gas to a separate company or subsidiary, which undertakes the carbon black production independent of the crude-oil producing company. In other places gas is sold extensively for heating and lighting purposes. This practice is especially common where the oil field is near some rather large metropolitan or industrial district, but gas pipe lines are being constantly extended to longer distances. Receipts from gas and miscellaneous sources have been placed as by-product credits against the cost of production of the crude oil.

4. Overhead Expense

Methods of allocating overhead applicable to crude-oil production differ radically between companies. Some concerns, at least for income-tax purposes, compute these expenses on a flat per barrel basis, irrespective of the field, district, or lease from which the oil was produced. This is equivalent to saying that overhead cost is the same for all crude oil produced by the company notwithstanding the fact that operating conditions differ radically between fields or even districts. Another basis that is used to allocate overhead to districts or leases is according to the amount of other operating expenses that can be directly assigned to the different districts or leases operated. On this basis a proportionately larger share of overhead is allocated to properties having larger operating costs. Although the proportions may not be correct, nevertheless this basis probably more nearly conforms to actual conditions than a flat per barrel proration. It seems obvious that more overhead (per barrel of crude oil) should be charged to an old property with wells which are being pumped than to a new property with free-flowing or gusher production.

A third basis for the allocation of overhead is to prorate it according to the number of producing wells within each district or lease where the company is operating. As this would have the effect of allocating as large an amount to a well producing a few hundred as to one producing thousands of barrels per year, the costs as submitted for companies making their allocation in this manner were revised on a per-barrel basis.

Under the caption of general and administrative expense, companies were requested to report all expenses of an administrative nature, as well as others not having a direct bearing on production in any one district, such as dry-hole and test-well expenditures, abandonment of such properties as were found nonproductive or which were abandoned prior to having been amortized through depreciation or depletion, rentals paid on nonproductive leases, amortization of nonproductive leasehold costs, engineering, geological and land department expenses.

5. Leasehold Versus Development Expense

In addition to the payment of a share of the oil produced as royalty, producing concerns often pay to the owners of land large sums for the privilege of obtaining a lease of their property for oil purposes. These payments or allowances for depletion are designated as leasehold expenses. The policy of a company with respect to expansion of production has an important effect upon the relation of this item of cost to the item of development expenses. Some companies elect to acquire undeveloped or unproved properties, while other companies pursue a more conservative policy of acquiring only proven properties. In the former case leasehold costs and rentals are likely to be small, but development expense, including geological work and dry-hole costs, is likely to be large. Where the more conservative policy is followed, on the other hand, leasehold cost is likely to be large and development expense small.

Some companies amortize leasehold cost over the period the lease has to run or until oil has been discovered, at which time the balance

remaining is depleted on the ratio of unamortized value to possible recoverable oil. Should the lease prove worthless prior to expiration, the companies either write off the unamortized value and cease payment of rentals, or capitalize leasehold costs and rentals and write them off at the expiration of the lease. Because of the interrelationship between leasehold cost and development expense it is necessary that these items be considered together in making comparisons between companies.

Development expenses are classified for income tax purposes as tangible expenses which include buildings, equipment, casings, etc., and intangible expenses comprising only the labor cost. The taxpayer is required to capitalize the tangible expenses and "write them off" or depreciate them on an annual basis irrespective of the quantity of oil produced.[1] With respect to the intangible (labor) development expense on the other hand, the taxpayer is allowed two alternatives: He may capitalize this expense and pro rate or deplete it over the total oil produced; or he may charge it off as a current operating expense in the year in which it is incurred. The only requirement is that the taxpayer must follow consistently whichever practice he first decides upon. Without interfering in any way with this option concerning intangible development expense, the Bureau of Internal Revenue has required the taxpayer to show the total amount of this expense that has been incurred since 1925. With but few exceptions, however, the taxpayers have elected to charge intangible development expense against current operations, that is, they have chosen the second alternative. Probably income tax practice has been followed by most of the companies in reporting these expenses to the commission.

6. Dry-Hole Expenses

In the course of developing an oil property it is inevitable that some dry holes will be drilled. Dry holes will result from efforts to locate oil pools before the property has become productive; and after the property has become productive other dry holes will be drilled as a result of the practice of drilling offset wells. A difficult question arises as to when a dry-hole expense is bona fide development cost and when it represents wildcatting or general exploration cost. It is certainly true that in the course of developing a particular property the expense of drilling certain dry holes, whether on the property or not, is a legitimate item of exploration cost. Dry-hole expense incurred only on productive properties as indicated above, does not tell the whole story since in the course of development many dry holes that represent legitimate costs (of exploration and development) are drilled on properties that never become productive; this drilling must be undertaken to some extent in order to locate the good properties.

7. Interest on Investment

With the exception of eight companies, investment in leasehold, tanigible development, capitalized intangible development, and equipment, was submitted together with reserves for depletion and depre-

[1] It should be noted that probably the larger part of these items, such as casings, derricks, etc.,become worthless when the oil deposit is depleted In other words, the useful life of the tangible equipment, depends upon production of oil rather than the lapse of time, and hence should be depleted rather than depreciated

ciation. Net investment (gross after deducting reserves) was used in calculating interest at six per cent. For those companies which did not submit figures on investment, the average net investment, on the per barrel basis, of the companies which did report this item, was used.

8. Classification of Expenses

Basing their reasoning on the foregoing considerations, the commission issued instructions to the companies to classify their expenses in the following way:

(*a*) Depletion of leasehold cost should be based on aggregate cost of producing leases, within reporting district, and total estimated recoverable oil.

(*b*) Amortization of tangible development costs should be the amount of depreciation charged on all tangible property, such as derricks, casings, tubing and rods, pumping equipment, line pipe and fittings, tanks, temporary buildings, etc.

(*c*) *Intangible development costs.*—All expenditures incurred in the development of producing properties should be included under this heading. This should cover all labor, teaming, supplies, fuel and water, drilling, rig expense, rental of equipment, erecting temporary camp sites, etc., incurred in the development of producing properties.

(*d*) *Current operating costs.*—Expenses such as labor, teaming, supplies, fuel and water, pumping, repairs, torpedoes, cleaning out, insurance, taxes (income tax not to be included), general lease expense, and any other incurred in the actual production of oil should be included under this caption.

(*e*) *General overhead and administrative expense.*—This should include prorated amount, charged to each producing district, of such items as officers' and office salaries, office supplies and expense, telephone and telegraph, automobile and truck expense, contributions, legal and auditing, depreciation on other company assets not directly chargeable to specific districts, engineering and geological expense, abandoned or canceled leases, dry hole and test well contribution, exploration costs, etc.

9. Cost of Production per Barrel

The results of the commission's investigation of costs of production of crude petroleum are shown in detail in Part III of this report. Here it is sufficient to give the summarized results as regards the cost of producing oil in the Mid-Continent-Gulf region, which furnishes the basis for comparison with the cost of Venezuelan oil.

The returns were tabulated separately for large companies, producing one million or more barrels each (that is, on the basis of their total production in the United States, and not merely their production in the Mid-Continent-Gulf region), and for smaller companies. The combined average for both large and small companies is substantially the same as that for the large companies alone, because the great bulk of the production covered by the returns was that of the large companies. For the three years 1927–1929 combined, the cost data covered 1,318,983,000 barrels of oil (including both company-interest and royalty oil), produced by large companies, and 30,510,000 barrels produced by small companies, a total of 1,349,493,000 barrels, in comparison with a grand total output of the Mid-Continent-Gulf

region during those years as reported by the Bureau of Mines, petroleum division, of 1,842,935,000 barrels. The returns for each separate year covered substantially the same proportion of the output of that year.

The averages given in the accompanying table are obtained by dividing the total costs incurred by the producing companies by the quantity of company-interest oil produced. Thus calculated, the average cost of production for the three years taken together was $1.10 per barrel for the large companies, and $1.06 for the small companies; the combined average for all reporting companies being $1.10. For 1927 the average cost for all companies was $1.20; for 1928, $1.07; and for 1929, $1.04.

TABLE 1.—*Average cost per barrel (company-interest oil) at wells in the Mid-Continent-Gulf area, large and small companies combined, 1927-1929*

[Cost per barrel]

	1927	1928	1929	Weighted average 1927–1929	Per cent
Production: (thousand barrels)	379,664	383,158	417,090	1,179,912	
Expenses:					
Depletion of leasehold	$0.13	$0.11	$0.11	$0.12	10.91
Amortization tangible development	.18	.16	.15	.16	14.55
Intangible development	.28	.22	.24	.24	21.82
Current operating	.28	.27	.27	.28	25.45
General and administrative	.30	.29	.27	.29	26.36
Total expenses	1.17	1.05	1.04	1.09	99.09
Deduct gas sales and miscellaneous revenue	.06	.07	.08	.07	6.36
Net cost, excluding interest	1.11	.98	.96	1.02	92.73
Interest at 6 per cent on investment	.09	.09	.08	.08	7.27
Net cost including interest	1.20	1.07	1.04	1.10	100.00
Average sales value at well	1.31	1.16	1.28	1.25	

The table distinguishes between the direct expense of production and interest on investment. For the three years together, the average direct expense for large and small companies combined amounted to $1.09 per barrel. From this is deducted the credit for by-products obtained as incidental to the business, consisting chiefly of sales of gas, and amounting on the average to $0.07 per barrel of crude oil (company-interest) produced. With this deduction the net direct expense averaged $1.02 per barrel. Adding interest on investment, calculated at 6 per cent and amounting on the average to $0.08 per barrel, the total net cost of production becomes, as already stated, $1.10 per barrel.

All five of the items of direct cost distinguished in the returns bulk large, both for the bigger companies and the smaller concerns. For the small companies the largest single item is that of operating cost, consisting chiefly of cost of pumping wells, but for the large companies the largest single item is general and administrative expense, which slightly exceeds that for operating cost. An important fraction of the general and administrative expense is made up of the cost of dry holes.

The average sales value at the well exceeded the net cost including interest in each of the three years. In 1927 the average sales value

was $1.31 per barrel as against a net cost of $1.20 per barrel; in 1928 the sales value was $1.16 and the cost $1.07; in 1929 the sales value was $1.28 and the cost $1.04, while for the three years combined the sales value was $1.25 per barrel as against a net cost of $1.10 per barrel.

B. COST OF PRODUCTION OF CRUDE PETROLEUM IN VENEZUELA

1. Introduction—Position of the Venezuelan Petroleum Industry

(*a*) *Development and potential production in Venezuela.*—Although exploration and development work started a number of years earlier, large scale production of petroleum in Venezuela did not begin until 1925. Areas known to contain petroleum are enormous and it has been said that only additional drilling and transportation facilities are necessary for oil production on a scale similar to that in the United States. It is probable that many other vast fields in Venezuela still remain to be proved.

Table 2.—*Venezuelan production of crude petroleum, 1917–1930 (6 months)*

Year	Quantity	Year	Quantity
	Barrels of 42 gallons		*Barrels of 42 gallons*
1917	120,000	1924	9,042,000
1918	333,000	1925	19,687,000
1919	425,000	1926	36,911,000
1920	457,000	1927	63,134,000
1921	1,433,000	1928	105,749,000
1922	2,201,000	1929	137,388,270
1923	4,201,000	1930 (6 months)	66,340,787

Source: Mineral Resources, Part II, Bureau of Mines, except 1929 and 1930, which are from O'Shaughnessy's South American Oil Reports.

The bulk of the petroleum produced in Venezuela at present comes from Lake Maracaibo. Smaller quantities are produced in the surrounding basin and in other sections of Venezuela. The main producing region of the lake is comprised in the so-called Bolivar coastal fields situated on the eastern shore. In this section the Lagunillas and La Rosa-Ambrosio fields account for the major part of the production, in 1927 the output amounting to about 78 per cent of total Venezuelan production and in 1929 to about 94 per cent. The map opposite this page shows the principal petroleum-producing fields in Venezuela.

Because ocean tankers can not enter Lake Maracaibo, the oil from this area is shipped in shallow-draft tankers to deep-water terminals where it is transferred to ocean tankers for export to the United States and Europe, or goes direct to refineries, located in the Dutch West Indies.

(*b*) *Principal producing companies.*—Four companies control the output in the Bolivar coastal fields. The Standard Oil Co. of Indiana, through its subsidiary the Lago Petroleum Corporation, controls the concessions under the lake bed, except the "marine zone," a strip 3,300 feet wide extending under the water around the entire shore of the lake, which is controlled by the Venezuela Gulf Oil Corporation, subsidiary of the Gulf Oil Corporation of Pennsylvania, and the

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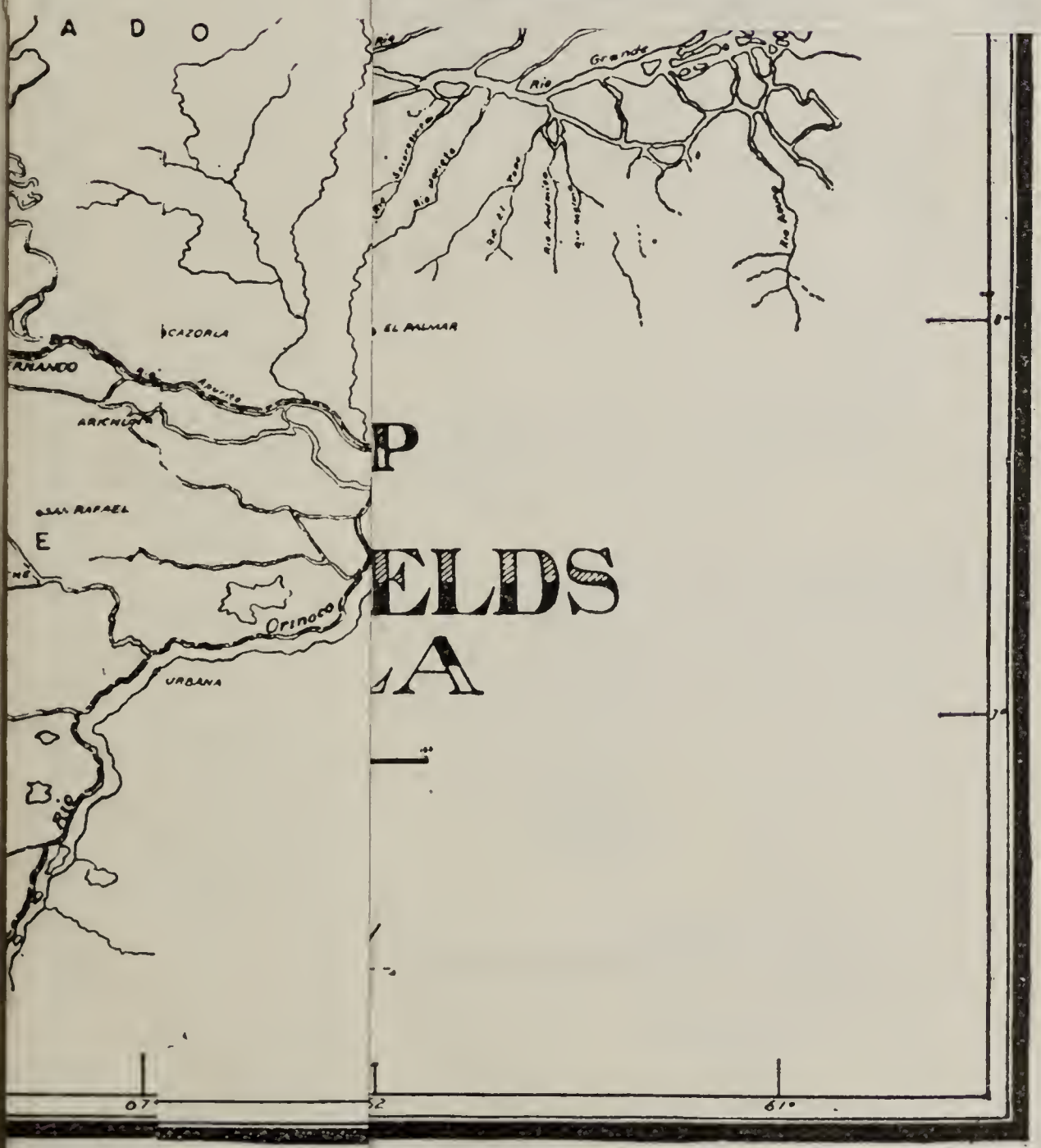

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38855—31. (Face p. 18)

Creole Petroleum Corporation, subsidiary of the Standard Oil Co. of New Jersey. The Royal Dutch Shell Co., through its subsidiaries, controls the concessions on the shore. Production of petroleum in Venezuela is about equally divided between the American companies and the subsidiaries of the Shell Co.

The following tables show production by companies and by fields in Venezuela for the years 1927 to 1930 (6 months):

TABLE 3.—*Crude petroleum: Production in Venezuela by companies, 1927–1930 (6 months)*[1]

[Barrels of 42 gallons]

	1927	1928	1929	1930 (6 months)
American companies:				
Lago [2]	16,301,856	30,938,465	36,737,656	18,232,409
Creole Petroleum Corporation	13,891,279	12,237,822	7,546,273	2,781,671
Gulf		3,730,771	29,967,728	11,274,877
Gulf Venezuela Petroleum		7,945,735	(3)	(3)
General Asphalt	317,192	437,000	426,000	252,100
Falcon Oil Corporation	----------	657,269	----------	----------
Total American	30,510,327	55,947,062	74,677,657	32,541,057
Shell companies:				
Venezuela Oil Concessions	20,832,854	36,150,906	45,294,900	20,536,740
Caribbean Petroleum	10,160,658	14,146,981	15,374,040	9,887,143
British Controlled Oil Fields (Ltd.) [4]	2,482,063	1,853,559	2,041,673	1,005,347
Colon Oil Company	----------	----------	----------	2,370,500
Total Shell	33,475,575	52,151,446	62,710,613	33,799,730
Grand total	63,985,902	108,098,508	137,388,270	66,340,787

[1] Source: O'Shaughnessy's South American Oil Reports.
[2] Includes Lagomax Co.
[3] Included with Gulf.
[4] The commission is advised since making this report that the Royal Dutch Shell Group is not connected with the British Controlled Oil Fields (Ltd.).

TABLE 4.—*Crude petroleum: Production, by fields, in Venezuela, 1927–1930 [6 months]* [1]

[Barrels of 42 gallons]

	1927	1928	1929	1930 (6 months)
Lagunillas	29,772,217	63,111,959	82,512,128	35,945,161
La Rosa-Ambrosio	20,088,454	28,390,758	36,310,022	16,193,226
Mene Grande	9,874,531	14,146,981	15,374,040	8,494,843
El Mene	2,535,023	1,853,559	2,041,673	1,005,347
Benitez	[2] 801,102	158,251	616,727	454,751
Guanoco	614,300	437,000	426,000	252,100
Concepcion	[2] 523,928	(3)	59,722	1,055,852
La Paz	227,371	(3)	35,402	176,707
Tia Juana	----------	----------	12,556	----------
Tarra	----------	----------	----------	2,370,500
All other	----------	----------	----------	1,392,800
Grand total	64,436,926	108,098,508	137,388,270	67,340,787

[1] Source: O'Shaughnessy's South American Oil Reports.
[2] Shut in part of year.
[3] Shut in.

(c) *Developments outside the Lake Maracaibo field.*—In addition to the four major producing companies in Venezuela, more than 30 others are engaged in exploration for oil, hold concessions, or are actually drilling wells, some of which are now producing. Much of the development work, however, has been reduced or stopped during the

past year, following the general curtailment policy with respect to production of crude oil.

The State of Zulia which nearly surrounds Lake Maracaibo, and hence accounts for the major part of the Venezuelan production of oil, is also the scene of much new development work outside the Maracaibo Basin, more especially in the areas west, southwest, and southeast of the lake, in one or more of which the four large companies and about 20 other companies, many of them American, hold concessions. Many concessions have been granted in the State of Falcon, bordering Zulia on the northeast, and in the State of Monogas, about 500 miles east of Lake Maracaibo.

The Creole Petroleum Corporation has been carrying on development work for seven years in the State of Monogas, eastern Venezuela. It is reported that future production may be obtained on a large scale over an area of about 2,100 square miles. The company has undertaken the building of wharves, pipe lines, storage tanks, camps, highways, and a railroad. A total of 39 wells was reported to have been drilled to September 1, 1930, of which 18 were under production. The first tanker of crude oil was shipped from this field in September. The oil is reported to be of lower gravity than that from the Maracaibo Basin.

The Standard Oil Co. of New Jersey is also exploring or drilling in the States of Falcon, Sucre, and Zamora, and in the territory of Delta Amacura; the Standard Oil Co. of Indiana and the Gulf Oil Corporation, in the State of Monogas, and the Shell interests, in the States of Falcon and Monogas.

Other well-known American companies or their subsidiaries are exploring or holding and developing concessions in Zulia, Falcon, or Monogas. Among these the following American companies may be mentioned: Standard Oil Co. of California; California Petroleum Corporation; Union Oil Co. of California; Atlantic Refining Co.; Texas Co.; Pure Oil Co.; Beacon-Sun Oil Co. (also holding concessions in the State of Trujillo); American Maracaibo Co.; New England Oil Co.; Richmond Petroleum Co.

(*d*) *Capital invested.*—It is reported [1] that the capital invested in petroleum by the Shell companies and the principal American companies in Venezuela is $105,378,000 and $184,122,000, respectively, or a total of $289,500,000. It is also reported [1] that the Creole Petroleum Corporation has invested in various works of exploration and drilling in Venezuela the sum of $63,000,000.

(*e*) *Curtailment of production.*—Under a gentleman's agreement, a restriction of crude oil production in Venezuela has been in effect for some time. The estimated potential production of all producing and shut-in wells in October, 1930, was about 593,300 barrels daily and actual production was at the rate of 383,500 barrels daily—about two-thirds of potential production. Of the estimated curtailment about 133,200 barrels was in the Laguinillas and La Rosa-Ambrosio fields.

In response to a resolution of Oklahoma oil producers in December, 1929, the Royal Dutch Shell proposed in February, 1930, curtailment of Venezuelan production for the year, proportionate with the year's curtailment compared with 1929 in the United States. In Septem-

[1] World Petroleum, December, 1930, p. 548.

ber, 1930, the Standard Oil Co. of Indiana proposed that Venezuelan production be curtailed 9 per cent as of October, 1930. No action has been taken on either of these proposals.

(*f*) *Refineries in Caribbean region.*—A recent development in connection with Venezuelan petroleum is the erection of three refineries in the Dutch West Indies by two of the largest petroleum producers in Venezuela. The oil is shipped in lake tankers from Lake Maracaibo to these refineries, and the gasoline is exported to the United States and elsewhere, thus accounting for the large increase in our imports of gasoline in recent years. These two companies do not export Venezuelan crude to the United States. The two largest refineries are equipped with modern cracking units, so that the gasoline yields are substantially higher than in topping operations, with the result that gasoline is probably the principal product in value, although not in quantity.

Two of these refineries are operated by the Dutch Shell interests on the Island of Curacao, Dutch West Indies. (See map.) They have daily capacities of 175,000 and 17,500 barrels. The smaller refinery has no cracking equipment. Late in 1928, the Lago Petroleum Co. commenced operation of a refinery of 110,000 barrels daily capacity on the neighboring Island of Aruba. (See map.) The total daily capacity of the three refineries is 302,500 barrels of crude oil.

In 1929 there were exported from the Dutch West Indies 9,713,579 barrels of gasoline, 158,519 barrels of kerosene, 1,042,195 barrels of lubricating oils, 6,166,014 barrels of gas oil, 54,430,544 barrels of fuel oil, and 800,016 barrels of Diesel oil. Due to greater production by the Lago refinery, imports of gasoline into the United States from the Dutch West Indies increased from 7,494,107 barrels in 1929, to 15,472,685 barrels in 1930, and represented, respectively, 84.8 and 91.4 per cent of the total imports of gasoline.

In addition, the Shell interests have one refinery of 20,000 barrels daily capacity, the West India Oil Co., one of 2,000 barrels daily capacity, and the Lago Petroleum Corporation one of 5,000 barrels daily capacity in Venezuela. These are all located in the Maracaibo region. There is one refinery in Colombia, and 17 in Mexico, a large percentage of the capacity of which has been inactive recently.

2. Cost Data for Crude Petroleum in Venezuela

The methods used in ascertaining and classifying costs were similar to those used in the case of domestic crude, as already described. Questionnaires were sent to the four principal producers of petroleum in the Maracaibo Basin at the same time that domestic producers were asked to submit their costs. The four companies, namely, the Creole Petroleum Corporation and subsidiaries, the Lago Petroleum Corporation, the Venezuela Gulf Oil Co., and the Royal Dutch Shell group, submitted cost figures for the years 1927, 1928, and 1929. The quantity of petroleum upon which the four companies reported costs represented 87.1 per cent of the total Venezuelan production in 1927, 89.7 per cent in 1928, 89.5 per cent in 1929.

The net cost of the Venezuelan oil, at point of transfer to ocean tankers, including interest on the investment of the companies, was found to be $0.87 per barrel in 1927, $0.63 in 1928, and $0.56 in 1929.

The 3-year weighted average was $0.65 per barrel, computed on a total 3-year production of 272,738,214 barrels of oil. The sale or transfer value of oil reported by these companies was $0.94 in 1927, $0.65 in 1928, and $0.60 in 1929—$0.685 for the 3-year weighted average. However, actual sales reported show a value of $1.14 for 1927, $0.77 for 1928, and $0.79 for 1929; or a weighted average for the three years of $0.847.

TABLE 5.—*Crude petroleum: Unit cost per barrel of Venezuelan oil delivered at loading point for 1927–29, and sales value of production for same period*

Item	1927	1928	1929	3-year cost
Expenses:				
Depletion	$0.0273	$0.0225	$0.0159	$0.0210
Amortization	.0815	.0626	.0694	.0694
Intangible development	.1806	.0925	.0935	.1107
Operating	.1274	.1127	.0850	.1032
General and administrative	.2456	.1799	.1684	.1880
Total expense	.6624	.4702	.4332	.4923
Less miscellaneous revenue	.0066	.0061	.0128	.0092
Net cost	.6558	.4641	.4204	.4831
Transportation to loading point	.0937	.0840	.0769	.0828
Net cost at loading point	.7495	.5481	.4973	.5659
Interest on investment	.1229	.0790	.0642	.0811
Net cost and interest	.8724	.6271	.5615	.6470
Sale or transfer value of production	.9353	.6451	.6044	.6853
Quantity of production covered (barrels)	54,997,400	94,812,086	122,928,728	272,738,214

The average gravity of the petroleum for which costs were obtained was 19.5° in 1927, and 19.3° in 1928 and 1929. Only a portion of this oil, however, was exported to the United States, the average gravity of which was 18.3°, as reported by the producing companies in each of the three years, 1927, 1928, and 1929. This compares with an average gravity of Venezuelan crude, reported by Atlantic coast refineries as received by them, of 18.9° in 1927, 18.7° in 1928, and 17.9° in 1929.

There are various taxes in Venezuela covering exploration, exploitation, and production; stamp taxes for titles, maps, and ships' manifests; and a navigation license fee and buoy tax on vessels navigating Lake Maracaibo and the channel to the sea. The taxes now in force are generally based on the petroleum law of 1928. Prior to that time special concessions were granted to various companies at specifically determined rates which are still in force.

These various taxes were all included in the Venezuelan costs of production, except the production or royalty tax, which has been treated in the same manner as royalty in the United States. That is to say, Venezuelan costs are based on company-interest oil, and cash paid as royalty in lieu of oil has not been considered as an item of costs.

The Venezuelan Government owns all the subsoil rights in the country, by virtue of which it levies a production or royalty tax on petroleum. Under the petroleum law of 1928, this tax is 10 per cent,[1] to be paid in cash or in kind. If paid in cash, a minimum of 2

[1] Under concessions granted prior to 1928, rate of about 9 per cent is still in force.

bolivars per metric ton (5.8 cents per barrel of 42 gallons) is specified. On concessions covered by waters of the sea, lakes, or navigable rivers, the tax is reduced by one-fourth. In such concessions the exploration and exploitation taxes are reduced by one-half. In the case of some of the present producers in the Maracaibo Basin, there are underlying royalties which involve some of the original concessions.

The buoy tax is based on the registered tonnage of the tankers employed in exporting oil to foreign countries. It amounts to 2 bolivars per registered metric ton to all countries, except the Netherland West Indies, to which it is 1 bolivar under the terms of a 25-year concession.

After receipt of the questionnaires, representatives of the commission visited each company to obtain additional information necessary to establish costs comparable with those of the domestic producers. Unlike domestic producers, whose costs stop at boundary line of lease where sales are made, Venezuelan producers include the cost of transporting crude petroleum by lake tankers from Lake Maracaibo to the point of transfer to ocean-going tankers. Costs have therefore been calculated for both domestic and Venezuelan production at "point of sale" and include for Venezuela interest on investment in lake tankers.

Producers of petroleum in Venezuela are obliged to spend large sums in the construction of living quarters, hospitals, roads, and other conveniences to afford proper living conditions for employees, whereas in the United States this is seldom done. These expenditures explain the large interest charge apparent in Venezuelan costs of production.

The average depth of wells in the Bolivar coastal fields (Laguinillas, La Rosa, Ambrosio, Punta Benitez, Tia Juana) is about 3,500 feet, of the wells in Mene Grande field, about 2,500 feet, and in the El Mene field, about 1,150 feet. The average depth of wells in Venezuela is considerably less than the average depth in the United States. The average daily production of wells in these principal fields is about 3,000 barrels per well, which would be reduced under the present curtailment program. In the United States the estimated average daily initial production of all wells was 341 barrels per well in 1927, and 668 barrels per well in 1928. The average daily production of wells in certain flush fields in Texas, California, and Oklahoma, varies from 1,000 to 14,000 barrels and over. These facts as to depth and size of wells have an important bearing on relative costs per unit.

C. COST OF TRANSPORTING AND DELIVERING MID-CONTINENT GULF CRUDE TO ATLANTIC SEABOARD

1. Introduction—The Method of Marketing Crude Petroleum

Crude petroleum, as it is first brought to the surface, contains varying percentages of water and sand or other sediment. It is run into settling tanks, in order to separate the oil from the impurities. When a crude-oil purchasing company buys the oil from the producer, a deduction is usually made to allow for water and sediment which remain in the oil. The amount which may be deducted is fixed by law in Oklahoma and Kansas at 3 per cent and in Texas at

2 per cent.[2] Allowances are sometimes based on actual tests, when the conditions vary from the average or normal. The purchasing company usually takes the entire production, including the royalty interests, and sends checks to the various parties who own interests in the oil.

The crude petroleum is collected from the point of production by gathering lines, which are usually small pipes laid on top of the ground. Sometimes the force of gravity alone is employed, but more often a pumping station is necessary. The crude may be stored for a time in a "tank farm" before being pumped through the trunk pipe line. The customary gathering charge in the Mid-Continent region is from 12½ cents to 20 cents per barrel. These gathering lines carry the oil to a trunk pipe line for transportation to refineries or to Gulf points from which it is carried in tank steamers to Atlantic seaboard refineries.

Considerable crude oil formerly was pumped through transcontinental pipe lines from the Mid-Continent field to the Atlantic seaboard, but only one or two large companies are now known to transport oil in this way. Most of the oil which moves from the Mid-Continent field to the Atlantic seaboard now goes via pipe line to Gulf ports and thence via tankers.

2. The Purchasing Charge or Marketing Commission

The intermediary between the producer and the refiner is the purchasing company.

Some of the crude oil purchasing companies buy for their own use or that of parent refining companies, others in whole or in part for resale. The Texas Co., the Gulf Oil Corporation, the Midwest Refining Co., the Standard Oil Co. of California, the Union Oil Co. of California, and the Associated Oil Co. have purchasing departments which buy for their own refineries. The purchases of the Standard Oil Co. of Louisiana, the Humble Oil & Refining Co., and the Magnolia Petroleum Co. are for their own refineries and those of their parent companies, the Standard Oil Co. of New Jersey, and the Standard Oil Co. of New York. The Stanolind Co. purchases partly for the parent company, the Standard of Indiana, and partly for resale. The South Penn Oil Co., the Prairie Oil & Gas Co., and others purchase mostly for resale.

Sales of crude petroleum by pipe-line or oil-purchasing companies to refineries are usually made at a delivered price.

The delivered price of the Prairie Oil & Gas Co. is the average price paid for mid-continent crude petroleum during the calendar month in which delivery is made, plus the marketing commission of 10 cents per barrel, plus the gathering charge, plus the trunk line transportation charge.[3]

The purchasing charge, or marketing commission, was not separately reported by the companies which buy for their own use, being included in the reported price paid for oil, and it was necessary for the commission to make an investigation to establish the amount of this purchasing charge as an individual item. This amount has been added to the other charges in the calculation of delivered costs, but

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[2] These deductions have been made by the companies in reporting to the Tariff Commission the amount of their production and it is on these figures, for production, that the commission has computed the cost.
[3] Federal Trade Commission Report on Prices, Profits, and Competition in the Oil Industry, 1928.

care has been exercised so that there would not be duplication because of the inclusion of such a charge with pipe-line charges by any company.

The customary purchasing charge in the Mid-Continent-Gulf area is 10 cents per barrel. Officials of purchasing companies state that as the result of many years of experience, 10 cents per barrel has been fixed as the average charge for the following services:

(*a*) The work of the legal department in checking and verifying all leases and oil contracts to determine the actual ownership of the oil—whether it is vested in the drilling company, the owners of leases, or the land owner—and to determine the actual interests of various royalty owners. Trouble may be caused by later appearances of minor heirs, trustees of imbeciles, Indians, brokers, or various royalty owners. If the purchasing company pays money for oil to the wrong person, it may later be required by the courts to pay again to the rightful owner.

(*b*) The second service is that of arranging with gathering lines and trunk lines for transportation of the crude from the settling tanks at the wells to refining organizations. The purchasing company takes care of the settlement of transportation accounts and all matters of loss in transit, leakage, and evaporation.

(*c*) The purchasing company finds the buyer—the refining company to which the crude oil is sold.

(*d*) The purchasing company has large amounts of money invested in storage tanks and in oil in transit and storage. In order to supply refineries with regular amounts on contract from day to day, it is necessary for the purchasing company to have pipe lines full of flowing oil and to have oil at storage at different points. Refineries operate seasonally and this fact adds to the necessity for keeping a large amount of crude oil in storage. The purchasing company not only incurs the expense of storage but runs the risk of loss by evaporation of oil; of reduction in the gravity of oil by evaporation of the first fractions; and of losses by a fall in the price.

3. The Posted Price of Purchasing Companies

The crude purchasing companies announce the prices they will pay by posting them on a bulletin board. Such posted prices are considered offers to buy. This system was not followed in the early days of the industry. In the Pennsylvania region crude petroleum was bought and sold on an exchange at Oil City, Pa. Oil sold on long-term contracts is sometimes sold at a fixed price for the entire time, and sometimes at a price varying according to the posted price.

4. Pipe-line Charges

As already stated, the bulk of the domestic crude petroleum delivered to the Atlantic coast in recent years from the Mid-Continent-Gulf area has moved by pipe line to Gulf ports, whence it was shipped by tankers to the eastern seaboard. In 1927, the proportion reported as moving by this route was 85.5 per cent of the total Atlantic coast receipts from this area; it was 95.5 per cent in 1928, and 96.5 per cent in 1929. The amount of crude shipped to the Atlantic seaboard all

the way by pipe line from the area west of the Appalachians and east of the Rockies has correspondingly declined. The commission has therefore undertaken to ascertain pipe-line charges only for the movement to Gulf ports.

Most of the pipe line companies are owned or controlled (sometimes jointly) by the large oil companies. As common carriers they are obliged to transport all oil tendered to them. When engaged in interstate business their rates are subject to regulation by the Interstate Commerce Commission; when in intrastate business, usually to regulation by State public utility commissions or bodies with similar regulatory powers. In most instances, pipe-line rates of different companies between similar points of origin and destination are substantially the same, although the elements constituting some total rates may vary in different cases. One company may quote the same rate from all points in Kansas and northern Oklahoma to the Gulf, while another will have separate rates from each pick-up point in that area, but the average for the several rates will be about the same as the flat rate of the other company. Again, gathering or feeder-line charges for one area may differ as between two companies, but such differences may be compensated for in the trunk-line rates. In general, the tariffs are based on mileage and the difference in elevation between points.

To attempt to obtain actual costs of transporting oil by pipe line would require far more time than is available under the law for this investigation, and greater resources than are now at the disposal of the commission.

Since pipe line companies are common carriers and entitled to make a profit, are subject to regulation and do not grant rebates to related companies, the rates which they charge, and which are paid ultimately by the refineries, appear to be a proper basis for calculation of transportation costs for the purposes of this investigation. Since the bulk of the oil delivered to the Atlantic seaboard from the Mid-Continent-Gulf region during the period 1927-1929 moved by pipe line to the Gulf coast, the commission has employed in its calculations the weighted average charges applying to such movements.

It was not possible to use the pipe-line charges shown in returns from the Atlantic seaboard refineries regarding the cost of the oil purchased by them. For some districts the pipe-line and also the purchasing charges were included in the cost of the oil delivered at Gulf ports and not segregated from the price paid for oil at the wells. In other cases, pipe-line charges reported by the refineries include purchasing charges, or were included in tanker charges.

The pipe-line charges as used in the commission's cost comparison, were determined from the Interstate Commerce Commission tariffs and weighted by the amounts of oil reported in the refinery schedules as received from the various districts of the Mid-Continent-Gulf region. The pipe-line tariffs include the gathering charges. In most instances the Interstate Commerce Commission tariffs showed the transportation and gathering charges from the area in which the oil was produced to the Gulf coast. In a very few instances where the oil was produced in an area for which no rates are shown in the tariffs, a charge was estimated on the basis of that from the nearest known point. In the few instances where the State but not the district in which the oil was produced was shown in the reports of the producing companies, an average rate was used based on the fact that one large pipe-line

company applied a flat rate for an entire State. In some cases the rates to different Gulf coast ports from a given producing field were different. In nearly all these cases the port of shipment of the oil was known, and the rate to that point was used. When the port of shipment was not known, an average of the rates to the different ports was used.

Computed on the above basis, the weighted average pipe-line charges, from the wells to Gulf ports, on the oil which moved from the Mid-Continent-Gulf area to the Atlantic seaboard in the three years under consideration were: In 1927, 52 cents; in 1928, 51 cents; and in 1929, 49 cents.

Table 6 shows, according to the reports of the leading Atlantic seaboard refineries, the quantities of crude, by districts of origin in the Mid-Continent-Gulf area, which moved by pipe line to Gulf ports and thence by tanker to those refineries, together with the calculated weighted average pipe-line and tanker charges thereon, for the years 1927, 1928, and 1929.

TABLE 6.—*Pipe-line and tanker charges on petroleum moving to Gulf ports and Atlantic seaboard, 1927–1929*

District	Number of barrels reported	Pipe-line charges		Tanker charges	
		Total	Per barrel	Total	Per barrel
	1927				
Kansas	125,282	$86,131	$0.6875		
Oklahoma	8,119,946	4,807,092	.5920		
North and Central Texas	23,132,460	13,109,590	.5667		
Oklahoma and Texas, mixed	4,858,858	2,672,372	.5500		
Total Mid-Continent	36,236,546	20.675,185	.5706	$12,621,189	$0.3483
South Texas—Gulf coast	11,347,922	2,197,271	.1936	3,432,746	.3025
West Texas	11,674,719	6,421,096	.5500	4,011,433	.3436
Texas Panhandle	9,933,236	6,953,265	.7000	3,171,682	.3193
Louisiana and Arkansas	8,659,364	4,199,864	.4850	3,242,066	.3744
Total	77,851,787	4 ,446,681	.5195	26,469,608	.3400
	1928				
Kansas					
Oklahoma	11,416,691	$6,845,206	$0.5996		
North and Central Texas	16,248,675	9,431,781	.5805		
Oklahoma and Texas, mixed	10,109,411	5,560,176	.5500		
Total Mid-Continent	37,774,777	21,837,163	.5781	$8,465,328	$0.2241
South-Texas-Gulf Coast	11,760,838	2,251,531	.1914	2,186,340	.1859
West Texas	29,785,554	16,382,056	.5500	6,091,146	.2045
Texas Panhandle	4,312,486	3,018,740	.7000	879,316	.2039
Louisiana and Arkansas	4,661,656	1,961,724	.4208	972,888	.2087
Total	88,295,311	45,451.214	.5148	18,630,311	.2110
	1929				
Oklahoma-Kansas	11,674,286	$6,753,770	$0.5785		
North and Central Texas	14,763,413	8,696,935	.5891		
Oklahoma and Texas, mixed	10,323,074	5,677,690	.5500		
Total Mid-Continent	36,760,773	21,128,395	.5747	$10,848,104	$0.2951
South Texas	18,434,630	3,907,715	.2120	4,962,602	.2692
West Texas	34,915,601	19,203,580	.5500	10,177,898	.2915
Texas Panhandle	1,954,505	1,368,154	.7000	569,543	.2914
Louisiana and Arkansas	3,148,166	1,213,084	.3853	940,672	.2988
Total	95,213,675	46,820,928	.4917	27,231,111	.2860

5. Tanker Charges

Table 6 shows, according to the reports of the leading Atlantic seaboard refineries, the quantities of crude which move to those refineries from the Mid-Continent-Gulf field, and on which tanker charges, also shown, were properly reported.

The tanker charges reported by refineries are from the books of the marine departments or subsidiary transportation companies, and include profits, if any, of these organizations.

The commission obtained data from a few refineries showing actual costs to operate these tankers per barrel of crude. In 1927 these costs varied from 17.6 to 26 cents per barrel, with a weighted average of 21.8 cents; in 1928, from 12¾ to 23 cents per barrel, with a weighted average of 17¼ cents; in 1929, from 13.2 to 24 cents per barrel, with a weighted average of 18.8 cents. Some of the reported costs were of necessity in the form of estimates. Limitations of time precluded the commission from ascertaining detailed costs of transporting petroleum in tank steamers.

In contrast with rates charged by pipe-line companies, there are no regulations governing rates charged by operators of tank steamers. Most of the large refineries in the East own and operate, directly or through subsidiaries, a sufficient number of tank steamers to take care of nearly all of their requirements and these vessels are not common carriers; however, a large number of tankers are available for charter and the rates which their owners charge are subject to the supply and demand for such bottoms. The rate which the refinery subsidiaries operating their own tankers charge to the parent company is in most cases governed by the so-called "going charter rate." In times when there is a surplus of tankers the "going charter rate" may be less than the cost of operation. It is more economical to operate tankers at a slight loss than to undergo the expense of laying them up.

Table 7.—*Crude petroleum: Transportation and other charges from Mid-Continent-Gulf area to Atlantic coast refineries, 1927–1929*

[Weighted average per barrel]

Year	Pipe line	Purchasing	Tanker	Total
1927	$0.5195	$0.10	$0.3400	$0.9595
1928	.5148	.10	.2110	.8258
1929	.4917	.10	.2860	.8777
3-year weighted average	.5078	.10	.2767	.8845

D. COST OF TRANSPORTING VENEZUELAN CRUDE TO ATLANTIC SEABOARD

As already stated, the costs of local pipe-line transportation of Lake Maracaibo oil, as well as the costs of transportation by small lake tankers to the point of transshipment to ocean going tankers, are not segregated from the costs of production of Venezuelan crude oil. The various oil producing companies operate the local pipe lines and the lake tankers themselves. There is no long distance pipe line transportation of the Lake Maracaibo crude, and even the gathering lines are very short. The transport costs up to the point of transshipment to ocean tankers are a relatively small item.

The charges on Venezuelan oil for transportation by ocean tankers to the Atlantic coast refineries are as shown by the books of those refineries, that is, the amounts paid by them for the transportation. They therefore include whatever profit there is to the transporting organizations. The transportation is performed in part by subsidiaries of the Venezuelan producing companies, in part by subsidiaries of the Atlantic coast refining concerns, and in part by independently operated tankers.

A few of the Atlantic coast refineries reported the payment of small amounts for "other charges" not specified as to kind, on Venezuelan oil. These have been added to the reported tanker charges. The average ocean tanker charge on Venezuelan oil as thus computed was $0.31 per barrel in 1927; $0.24 in 1928, $0.23 in 1929, and an average of $0.24 for the three years.

E. COMPARATIVE COSTS OF PRODUCTION AND DELIVERY

Table 8 summarizes the costs of production and delivery of Mid-Continent-Gulf and Venezuelan (Lake Maracaibo) oil, respectively. As already pointed out, the quality of Mid-Continent-Gulf oil is much higher than that of the Venezuelan oil. This difference is more fully discussed in section G.

The table shows that on the average for the three years, 1927 to 1929, the cost of production of crude oil in the Mid-Continent-Gulf area was $1.10 per barrel. The average cost of transportation by pipe line and ocean tankers from the wells to Atlantic seaboard refineries, together with the costs of purchasing oil, during this period was $0.88 per barrel, making the total cost delivered to the Atlantic seaboard refineries $1.98. The average cost of production of Venezuelan oil in 1929, which may be taken as representing "present" costs, for the purposes of section 332(f), including local pipe line and lake tanker transportation, was $0.56 per barrel and the cost of ocean tanker transportation to the Atlantic seaboard refineries was $0.23, making a total delivered cost of $0.79 cents. On the average for the three years, 1927 to 1929, the Venezuelan crude cost, delivered at the Atlantic seaboard refineries, was $0.89 per barrel. All these figures for Venezuelan oil relate to the Lake Maracaibo product only.

TABLE 8.—*Crude petroleum: Cost of production and of delivery to refineries on Atlantic seaboard of Mid-Continent-Gulf and of Venezuelan oil, 1927–1929*

[The Venezuelan costs relate only to Lake Maracaibo oil]

	Costs of production and delivery		
	Cost of production at well	Transportation and other charges [1]	Cost delivered at Atlantic seaboard refineries
Mid-Continent-Gulf oil:			
1927	$1.2009	$0.9595	$2.2604
1928	1.0652	.8258	1.8910
1929	1.0352	.8777	1.9129
3-year weighted average	1.0983	.8845	1.9828
Venezuelan oil:			
1927	.8724	.3111	1.1835
1928	.6272	.2356	.8628
1929	.5616	.2288	.7904
3-year weighted average	.6470	.2428	.8898

[1] Purchasing charge of 10 cents per barrel on domestic crude is included.

F. PRICES OF CRUDE PETROLEUM DELIVERED TO REFINERIES LOCATED ON THE ATLANTIC SEABOARD

As previously stated, the possible ambiguity in the interpretation of section 332 (f), of the tariff act of 1930, resulted in the commission's obtaining, in addition to the costs of production of crude petroleum at the well and of delivery thereof to the refineries on the Atlantic seaboard, the amounts paid per barrel by those refineries for the oil delivered to them, which may for convenience be called prices delivered. The commission obtained the delivered prices from all oil refineries on the Atlantic seaboard having a capacity of 5,000 barrels or more per day. No returns were requested from individual asphalt plants which, with one or two exceptions, are of less than 5,000 barrels daily capacity, operate largely on Mexican petroleum and are not important factors in the gasoline and fuel oil markets. The returns covered from 93 to 97 per cent of the total actual runs of domestic crudes to refineries located on the Atlantic seaboard, and nearly 100 per cent in the case of Venezuelan crude.

1. Prices Paid for Domestic Crude

Table 9 shows the prices paid for domestic crude petroleum, delivered to the refineries on the Atlantic seaboard, by districts in which produced.

It should be noted that the weighted average price per barrel of all domestic crude petroleum delivered to Atlantic seaboard refineries is, for all three years and for the first six months of 1930, higher than the price of crude from the Mid-Continent-Gulf area only.

Table 9.—*Prices paid for domestic crude petroleum delivered to Atlantic seaboard refineries by districts in which produced, 1927–1930 (6 months)*

District	1927			1928		
	Average gravity	Number of barrels delivered net	Total delivered prices	Average gravity	Number of barrels delivered net	Total delivered prices
Texas, Oklahoma, Kansas	37.1	49,307,015	$122,324,510	36.9	41,603,688	$94,178,135
Average unit costs			2.4809			2.2642
Gulf coast, Texas-South Texas	27.0	11,347,922	20,060,389	26.5	11,760,838	19,114,590
Average unit costs			1.7677			1.6253
West Texas	33.3	11,674,719	23,356,997	30.4	29,785,554	45,140,070
Average unit costs			2.0006			1.5155
Texas Panhandle	36.6	9,983,531	20,976,510	37.3	4,554,205	8,871,217
Average unit costs			2.1011			1.9479
Louisiana-Arkansas	26.2	8,659,394	18,730,234	27.2	4,661,656	8,224,662
Average unit costs			2.1630			1.7643
California	26.6	8,765,554	16,342,500	26.0	2,044,414	3,963,515
Average unit costs			1.8644			1.9387
Pennsylvania	42.6	3,833,392	14,352,246	42.6	3,838,750	14,235,690
Average unit costs			3.7440			3.7084
Grand total	33.9	103,571,527	236,143,386	33.3	98,249,105	193,727.879
Total average unit costs			2.2800			1.9720

TABLE 9.—*Prices paid for domestic crude petroleum delivered to Atlantic seaboard refineries by districts in which produced, 1927–1930 (6 months)*—Continued

District	1929			Jan. 1 to June 30, 1930		
	Average gravity	Number of barrels delivered net	Total delivered prices	Average gravity	Number of barrels delivered net	Total delivered prices
Texas, Oklahoma, Kansas	37.1	40,498,354	$96,483,906	37.0	19,025,014	$43,645,775
Average unit costs			2.3824			2.2941
Gulf Coast Texas & South Texas	26.9	18,434,640	32,440,938	27.0	14,225,579	23,661,528
Average unit costs			1.7598			1.6633
West Texas	30.1	34,915,601	61,369,414	30.1	17,850,006	30,961,341
Average unit costs			1.7577			1.7345
Texas Panhandle	37.9	2,118,939	4,938,353	39.0	546,475	1,308,174
Average unit costs			2.3306			2.3938
Louisiana-Arkansas	26.7	3,148,166	5,813,932	25.8	1,392,295	2,546,960
Average unit costs			1.8468			1.8293
California	28.2	469,409	870,111			
Average unit costs			1.8536			
Pennsylvania	42.5	4,972,096	21,669,159	43.1	2,932,960	10,537,853
Average unit costs			4.3582			3.5929
Grand total	32.9	104,557,205	223,585,813	32.3	55,970,329	112,661,631
Total average unit costs			2.1384			2.0129

The districts shown as sources of the domestic crudes are those generally used to represent the principal types of oil produced in the United States. The deliveries of domestic crudes to the Atlantic seaboard were, for the most part, by pipe line to the Gulf coast, and thence by tanker to the refineries.

The following summary statement compares the prices paid by the refineries in each of the three years 1927 to 1929 for Mid-Continent-Gulf oil delivered to their plants, with the figures of cost of production at wells in the Mid-Continent-Gulf area plus transportation and other charges for delivery to the Atlantic seaboard refineries.

TABLE 10.—*Costs and prices of Mid-Continent-Gulf oil, including delivery to Atlantic seaboard refineries, 1927–1929*

Year	Cost at wells plus transportation and delivery	Prices paid by Atlantic seaboard refineries, delivered
1927	$2.2604	$2.2584
1928	1.8910	1.9004
1929	1.9129	2.0284
3-year weighted average	1.9828	2.0606

2. PRICES PAID FOR VENEZUELAN CRUDE

Table 11 shows the prices paid by Atlantic seaboard refineries for crude petroleum from the Maracaibo Basin, together with the payments for transportation and other expenses of delivery to the refineries. In this case the price paid for the oil itself is at the point of transfer to ocean tankers, and thus includes cost of local pipe-line transportation and of transportation by lake tankers.

TABLE 11.—*Prices paid for Venezuelan crude petroleum (Maracaibo Basin) delivered to Atlantic seaboard refineries, 1927–1930 (6 months)*

	Average gravity	Number of barrels delivered net	Price paid for oil	Ocean tanker expenses	Total delivered price
Total for 1927	18.9	12,427,243	$14,656,019	$3,866,472	$18,522,491
Average unit costs			1.1793	0.3111	1.4904
Total for 1928	18.7	39,257,517	31,702,491	9,187,446	40,889,937
Average unit costs			0.8076	0.2356	1.0416
Total for 1929	17.9	36,231,154	28,710,796	8,290,906	37,001,702
Average unit costs			0.7925	0.2288	1.0213
Total for 1930 (6 months)	17.9	14,611,762	10,964,895	3,460,671	14,425,566
Average unit costs			0.7504	0.2369	0.9873

The following table compares the costs of production of Venezuelan crude plus transportation to Atlantic seaboard refineries, with the prices paid by those refineries for the oil delivered to them:

TABLE 12.—*Costs and prices of Venezuelan (Lake Maracaibo) oil*

Year	Cost at wells plus transportation and delivery	Prices paid by Atlantic seaboard refineries delivered
1927	$1.1835	$1.4904
1928	.8628	1.0416
1929	.7904	1.0213
3-year weighted average	.8898	1.0967

3. COMPARISON OF PRICES PAID FOR DOMESTIC AND VENEZUELAN CRUDE

The following table compares the prices paid by the Atlantic seaboard refineries for Mid-Continent-Gulf crude delivered to them, with the prices paid for Venezuelan crude delivered to them:

TABLE 13.—*Prices, including transportation and delivery, paid by Atlantic seaboard refineries for Mid-Continent-Gulf and for Venezuelan (Lake Maracaibo) crude petroleum*

Year	Mid-Continent-Gulf crude	Venezuelan crude
1927	$2.2584	$1.4904
1928	1.9004	1.0416
1929	2.0284	1.0213
3-year weighted average	2.0606	1.0967

G. FACTORS AFFECTING COMPARATIVE COSTS AND PRICES OF DOMESTIC AND VENEZUELAN OILS

1. COMPARATIVE QUALITY OF OIL

As stated in Part I of this report, domestic and Venezuelan crude oils are not of the same quality. How far the difference in the cost of production is due to this difference in quality there is no way of stating. The costs of drilling an oil well are independent of the

quality of the oil which may be found, although producers will naturally be inclined to drill deeper and more expensive wells where they anticipate a high quality of output than where they anticipate a low grade product. The costs of pumping and handling the oil are almost entirely independent of gravity and other characteristics which determine quality.

Whatever may be the relation between the cost of production and the quality of crude oil, there is an unquestioned relation between price and quality. Refiners will naturally pay a higher price for a crude which contains large proportions of the more valuable products than for one which contains only small proportions of such products. The difference in the net price paid by Atlantic coast refiners for Mid-Continent-Gulf as compared with Venezuelan crude, delivered to their plants, as shown in the preceding section, is a reflection of the difference in quality.

The nature of this difference in quality is further shown by statistics of the products obtained from the domestic and the Venezuelan crude, respectively.

There is a close connection between the yields of the several products and the gravity of the crude. Venezuelan petroleum has an asphalt base and although the gravity ranges from 16° to 33° Baumé, the bulk of the output is of about 18° to 19°. The natural gasoline content is about 8 per cent and the sulphur content about 2.5 per cent. The refineries which receive imports of Venezuelan crude oil "top" or "skim" the crude to obtain this natural gasoline content. Small quantities of other distillates are also obtained, consisting chiefly of gas oil, some of which is cracked to produce more gasoline. The total amount of gasoline obtained by the Atlantic seaboard refineries from Venezuelan crude averaged 11.7 per cent of the quantity of the crude used in 1927, but the proportion fell to 9¼ per cent in 1929. The bulk of the product in quantity is in the form of the residue after this partial distillation process. On the average, from 80 to 83 per cent of the Venezuelan crude comes out of the refineries as fuel oil.

Domestic petroleums are of paraffin, asphalt, and mixed bases. The paraffin base oils, such as Pennsylvania crude, are in demand for lubricating oils, and consequently command premiums. Lubricants are also made from asphalt base oils, which are more abundant and hence not quoted at premiums.

The average gravity of all domestic crude oils is about 33° and the average natural gasoline content about 24 per cent. Domestic crudes from various fields vary greatly in gravity, extremes being as low as 6.8° with no gasoline content, and as high as 48° with 65 per cent gasoline content. The oil from the Mid-Continent-Gulf area, the basis used for the cost comparisons in this report, averages about 33° gravity, about one-fourth of 1 per cent sulphur, and is generally of paraffin-asphalt base. The average gravity of all domestic oils delivered to refineries on the Atlantic coast during the period 1927–1929 ranged from 33.9 to 32.3°. Some fields in California and the Smackover field in Arkansas produce oil very nearly comparable in gravity to Venezuelan oil, but only small quantities of these crudes have reached the Atlantic seaboard in recent years.

In 1914 the yield of gasoline from all domestic crudes averaged about 18 per cent. In 1929 the yield had increased to about 39 per cent and for refineries on the Atlantic coast, which use chiefly Mid-

Continent-Gulf crude, to 44 per cent. It has been stated [1] that the yield could be increased to 60 per cent or more if the new refining methods were applied to all the crude oil refined.

In general, therefore, the characteristics of domestic and Venezuelan petroleums are so different that the former is run chiefly for gasoline, and the latter chiefly for fuel oil. In 1929 nearly 5 barrels of Venezuelan crude would have been required by the refineries on the Atlantic seaboard to produce an amount of gasoline equal to that which they produced from one barrel of domestic crude.

Tables 14 and 15 show typical yields of finished products derived from domestic and Venezuelan crudes by Atlantic seaboard refineries during the years 1927 to 1929. The average price commanded at the refineries by each of these major products is multiplied into the quantity derived, and the approximate total value of the products realized from a barrel of crude is thus computed. It will be seen that in 1929 the value of products derived from a barrel of domestic crude—the greater bulk of the domestic crude used being from the Mid-Continent-Gulf area—was $2.97, while the corresponding value of the products derived from Venezuelan crude was $1.15. The difference is primarily due to the relative proportions of gasoline and fuel oil and the wide excess in the price of gasoline over that of fuel oil. The average price of gasoline in 1927 was about two and one-fourth times that of fuel oil, but in 1929 it was worth four times as much as fuel oil. Furthermore, a small but valuable yield of lubricating oils is obtained from the domestic crudes, whereas the Atlantic coast refineries do not undertake to obtain lubricating oils from the Venezuelan crude.

TABLE 14.—*Typical yields of finished products*, 1927–1929

	Domestic crude, Atlantic coast refineries								
	Thousand barrels			Per cent			Value refined products per barrel crude		
	1927	1928	1929	1927	1928	1929	1927	1928	1929
Crude run to stills [a]	117,332	113,249	117,933						
Refined products:									
Gasoline	42,532	44,591	52,172	36.25	39.37	44.24	$1.280	$1.606	$1.694
Kerosene	10,413	8,563	8,091	8.87	7.56	6.86	.244	.250	.227
Gas oil and fuel oils	42,637	35,548	34,890	36.34	31.39	29.58	.709	.474	.382
Lubricants	10,144	10,817	10,874	8.65	9.55	9.22	.430	.494	.554
Wax	824	841	950	.70	.74	.81	.055	.081	.069
Coke	695	626	817	.59	.55	.69	.005	.006	.007
Asphalt	3,790	6,036	518	3.23	5.33	.44	.059	.118	.008
All other	1,134	1,316	1,463	.97	1.16	1.24	.020	.026	.032
Unknown			2,093			1.77			
Loss	5,163	4,911	6,065	4.40	4.35	5.15			
Total	117,332	113,249	117,933	100.00	100.00	100.00	2.802	3.055	2.973
Cost of crude delivered to Atlantic coast refineries per books of refineries							2.280	1.972	2.138

[a] From U. S. Bureau of Mines Reports.

[1] Oil Conservation and Fuel Oil Supply, National Industrial Conference Board (Inc.), 1930.

TABLE 15.—*Typical yields of finished products, 1927–1929*

	Venezuelan crude, Atlantic coast refineries								
	Thousand barrels			Per cent			Value refined product per barrel crude		
	1927	1928	1929	1927	1928	1929	1927	1928	1929
Crude run to stills [1]	9,979	37,217	30,471						
Refined products:									
Gasoline	1,167	3,896	2,820	11.69	10.47	9.26	$0.400	$0.367	$0.305
Gas oil	161	454	378	1.61	1.22	1.24	.032	.012	.008
Fuel oil	7,576	30,986	24,712	75.93	83.26	81.10	1.218	.802	.689
Miscellaneous product	955	1,363	2,210	9.57	3.66	7.25	.238	.077	.151
Loss	120	518	351	1.20	1.39	1.15			
Total	9,979	37,217	30,471	100.00	100.00	100.00	1.888	1.258	1.153
Cost of crude delivered to Atlantic coast refineries, per books of refineries							1.490	1.041	1.021

[1] Amounts of Venezuelan crude shown by refineries giving data on yields of refined products from Venezuelan crude.

These figures of the realization from domestic and Venezuelan crudes can not be taken as a direct measure of the difference in the value of the two kinds of crude, for the reason that they do not take into account the difference in refining costs. Because of the greater variety of products obtained from the domestic crudes, necessitating not only more elaborate distillation processes but other processes of purifying and perfecting the products, the cost of refining the domestic oils, calculated per barrel of crude, is considerably greater than the cost of refining the Venezuelan oils. The Tariff Commission did not attempt to ascertain the costs of refining domestic and Venezuelan crudes, partly because of the limitation of time, and partly because some refineries mix domestic and Venezuelan or various imported oils to such an extent that it would be impossible to obtain representative costs.

2. Difference in Age of Wells

Another element affecting the relative costs of production of petroleum in the United States and in Venezuela is the difference in age of the wells in the two areas. Initial or flush production of an oil pool is at substantially lower cost per barrel than the output of later years when pumping is employed to lift the oil. Sometimes a well may produce in the first year 50 per cent of its ultimate output during its entire life. The greater part of the domestic production of petroleum during the period 1927–1929 was from relatively old wells on the pump, notwithstanding the recent bringing in of gushers (wells flowing from natural pressure) in Oklahoma and elsewhere.

The average producing age of the oil fields of the United States is substantially greater than that of the fields of the Maracaibo Basin. Production on a large scale in Venezuela commenced about 1925–26, and reached its peak in 1929, the decrease in 1930 being chiefly due to curtailment on the part of the operators. Heretofore the production has been chiefly from gushers. Many of the wells in the Maracaibo Basin have, however, recently been, or are about to be,

equipped with pumps. It is evident that production in the Bolivar coastal fields of Lake Maracaibo has largely passed the flush stage, and that therefore operating costs in this region may be expected to increase. Flush production in other parts of Venezuela, however, such as the eastern section, where a subsidiary of the Standard Oil Co. of New Jersey is operating, has yet to be reached.

3. Effect of Curtailment of Production

The curtailment of production, which has recently been put into effect in Oklahoma, California, and elsewhere also affects costs. Shutting in of a gusher, or of a flowing well, increases the per barrel cost of production because of the lessened output, and in some recently brought-in wells, has resulted in the inflow of salt water. Ceasing to pump a nonflowing well reduces the ultimate output, or, according to recently observed indications, may result in complete loss of production. During the three years 1927–1929, for which cost data were obtained, curtailment was not a large factor in the American petroleum industry, but during 1930 it has become of major importance, especially in Oklahoma and California. In Venezuela curtailment has also been in force during 1930, but not in any important degree prior to that year.

4. Relative Stability of Investment in the United States and Venezuela

The relative stability of investments in petroleum in Venezuela and in the United States may have a bearing on the interpretation of the costs of production in the two countries. Capital costs for both countries have been computed in this report on the same basis. The large expenditures of American and other producers in Venezuela for facilities incidental to production, such as towns, hospitals, service facilities, etc., have been placed in the capital account in the same manner as ordinary capital expenses of producers in the United States. This method, however, is different from that employed by some of the producers in Venezuela, who charge such items to operating expense in the year incurred. Their reason for doing this is given as the risk involved in investments in Latin-American countries. They consider it sound business practice to charge to expense as many items as possible, rather than to capitalize them over a period of years, which may be of uncertain stability.

PART III

OTHER COST DATA

The data set forth in Part II cover the costs of crude petroleum in the Mid-Continent-Gulf area, the Venezuelan costs, the transportation and other charges incident to delivery of these oils to the Atlantic seaboard, the delivered prices paid by refineries and the comparability of the domestic and Venezuelan crudes. Part III of the report deals with average costs of crude petroleum for the United States as a whole, but does not, for reasons set forth at length at the beginning of Part II, deal with the cost of delivering such oil to the Atlantic seaboard.

1. Form in Which the Tabulations of Costs Has Been Presented

The costs obtained have been tabulated in several different ways in order to bring out as many pertinent facts as possible, as well as to provide a further check on their reasonableness and accuracy.

They have been arranged, keeping large and small companies separated, as well as the years:

1. By companies.
2. By States and groups of States.
3. By districts or fields.
4. By cost groups.
5. By gravity of the oil produced.

All the tables above referred to are based on company-interest oil, and do not consider the value of royalty oil as an element in cost. At the end of this part is presented a table on the other basis, that is, counting the value of royalty oil as one of the elements of cost, but dividing the various items of cost by the total output including royalty oil.

2. Weighted Average Costs for Large and Small Companies, in the Country as a Whole

The first tabulation made of costs shows the weighted average for large and small companies, respectively, for each of the three years, 1927, 1928, and 1929, and a weighted average for all companies. This calculation was made without regard to States or fields where the oil was produced, and without reference to the gravity, base, or other quality of the oil produced. The results give an average cost for the production of crude petroleum for the country as a whole. The figures are weighted so heavily by the large quantity of oil produced in the Mid-Continent-Gulf fields that the average is not widely different from that shown above in the report for the aforesaid fields. The figures for weighted average costs are as follows:

GROUP I.—*Companies having an annual output of 1,000,000 barrels or more*

Year	Weighted average cost per barrel	Weighted average price received per barrel
1927	$1.15	$1.28
1928	1.05	1.16
1929	1.00	1.28
Average, 3 years	1.07	1.24

GROUP II.—*Companies having an annual output of less than 1,000,000 barrels*

Year	Weighted average cost per barrel	Weighted average price received per barrel
1927	$1.16	$1.21
1928	1.21	1.21
1929	1.41	1.40
Average, 3 years	1.26	1.27

GROUPS I AND II.—*Combined average costs and prices for all companies*

Year	Weighted average cost per barrel	Weighted average price received per barrel
1927	$1.16	$1.28
1928	1.06	1.16
1929	1.02	1.28
Average, 3 years	1.08	1.24

The averages of costs shown for the small companies are not, it will be noted, markedly different from those for large companies, and when the two groups are combined, the far greater quantity produced by the large companies causes the weighted average to be very close to that shown for Group I, or the large companies. The reports made by large companies to the commission represent a much larger proportion of the total production of all large companies in the country, than the reports made by small companies represent of the production of such companies. If the reports from small companies can be considered representative for all companies of that class, a complete average cost for the entire output of the United States would be slightly higher than shown in the above table.

The figures, given in Part II for the cost of crude petroleum delivered at Atlantic seaboard refineries, are based on the cost of production in the Mid-Continent-Gulf area (which includes Kansas, Oklahoma, New Mexico, Texas, Arkansas, and Louisiana fields) plus transportation, purchasing, and other charges incident to delivery. It was thought to be of interest and value, however, to present the above figures, which would show an average cost of production for the country as a whole.

The figures for price received per barrel agree very closely with the figures given by the petroleum division of the United States Bureau of Mines for average value, at the well, of all crude petroleum produced in the United States. The figure given by the Bureau of Mines for average value in 1927 was $1.30 per barrel, while the amount ascertained by the Tariff Commission is $1.28; the Bureau of Mines figure for 1928 is $1.17 per barrel as against $1.16 as found by the commission; while in 1929 the Bureau of Mines found the value to be $1.27 and the Tariff Commission, $1.28. Figures for the whole country and the Mid-Continent-Gulf area show the predominant influence exerted by that area on the general situation.

Itemized cost for the United States as a whole.—Table 16 shows the separate items of cost, per barrel, for oil produced by both large and small companies in the United States as a whole, as reported to the commission. The distribution of costs among the items for the country as a whole is closely similar to that shown for the Mid-Continent-Gulf area only.

TABLE 16.—*Average cost per barrel at wells in the United States, large and small companies combined, by items*

[Based on company interest oil]

	1927	1928	1929	Weighted average, 1927–1929	Per cent
Production (thousand barrels)	488,607	499,541	578,901	1,567,049	
Expenses:					
Depletion of leaseholds	$0.13	$0.11	$0.10	$0.11	10.19
Amortization of tangible development	.18	.16	.16	.16	14.82
Intangible development	.27	.23	.26	.26	24.07
Current operating cost	.32	.31	.29	.31	28.70
General and administrative	.27	.27	.24	.26	24.07
Total	1.17	1.08	1.05	1.10	101.85
Deduct receipts from gas sales and miscellaneous revenue	.11	.11	.12	.11	10.19
Net cost excluding interest	1.06	.97	.93	.99	91.66
Interest on investment (6 per cent)	.10	.09	.09	.09	8.34
Net cost including interest	1.16	1.06	1.02	1.08	100.00
Average selling price	1.28	1.16	1.28	1.24	

3. QUANTITY OF OIL PRODUCED AT DIFFERENT AVERAGE COSTS

There are wide differences in the cost of producing oil on the part of different concerns. There are often also wide differences for a single concern as between the costs in different fields in which it operates. The data obtained by the commission showed for each producing company its costs in each of the pools, fields, or other areas, distinguished in its accounts. The data for each area were punched on a separate card, together with the average unit cost per barrel. These cards were subsequently sorted according to unit costs and the quantity produced within different cost limits were thus ascertained.

The results are shown in the two following tables. Table 17 shows the percentage of the total quantity of oil produced within each specified limit of cost, while Table 18, obtained by cumulating the figures in the preceding table, shows how much oil was produced at or below each specified limit of costs.

It will be seen that the great bulk of the oil was produced, in the case of both the large companies and the small companies, at a cost not less than 40 cents nor more than $1.60 per barrel. In the case of the large companies, much more than half of the oil was produced at between 40 cents and $1.20 per barrel, and from seven-eighths to nine-tenths of the total (varying in different years) was produced at a cost of less than $1.60 per barrel. The figures of Table 17 are illustrated by the accompanying diagrams.

TABLE 17.—*Percentage of oil reported which was produced within cost limits specified*

	Group I. Large companies			Group II. Small companies		
	1927	1928	1929	1927	1928	1929
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cen*
0 to 39 cents per barrel	11.09	10.68	13.17	13.45	8.89	3.9
40 to 79 cents per barrel	20.97	27.45	28.52	23.32	26.52	22.2
80 cents to $1.19 per barrel	30.24	35.96	32.65	21.88	20.10	23.4
$1.20 to $1.59 per barrel	22.51	11.79	14.92	21.67	23.49	23.7
$1.60 to $1.99 per barrel	6.61	6.48	5.38	7.70	8.83	9.1
$2 to $2.39 per barrel	3.91	3.03	1.87	7.04	6.87	8.0
$2.40 to $2.79 per barrel	1.80	1.02	1.01	1.22	1.56	1.4
$2.80 to $3.20 per barrel	.49	1.38	.50	1.03	1.94	1.3
Over $3.20 per barrel	2.38	2.21	1.98	2.69	1.80	6.6

TABLE 18.—*Percentage of oil reported which was produced at or below the cost specifie*

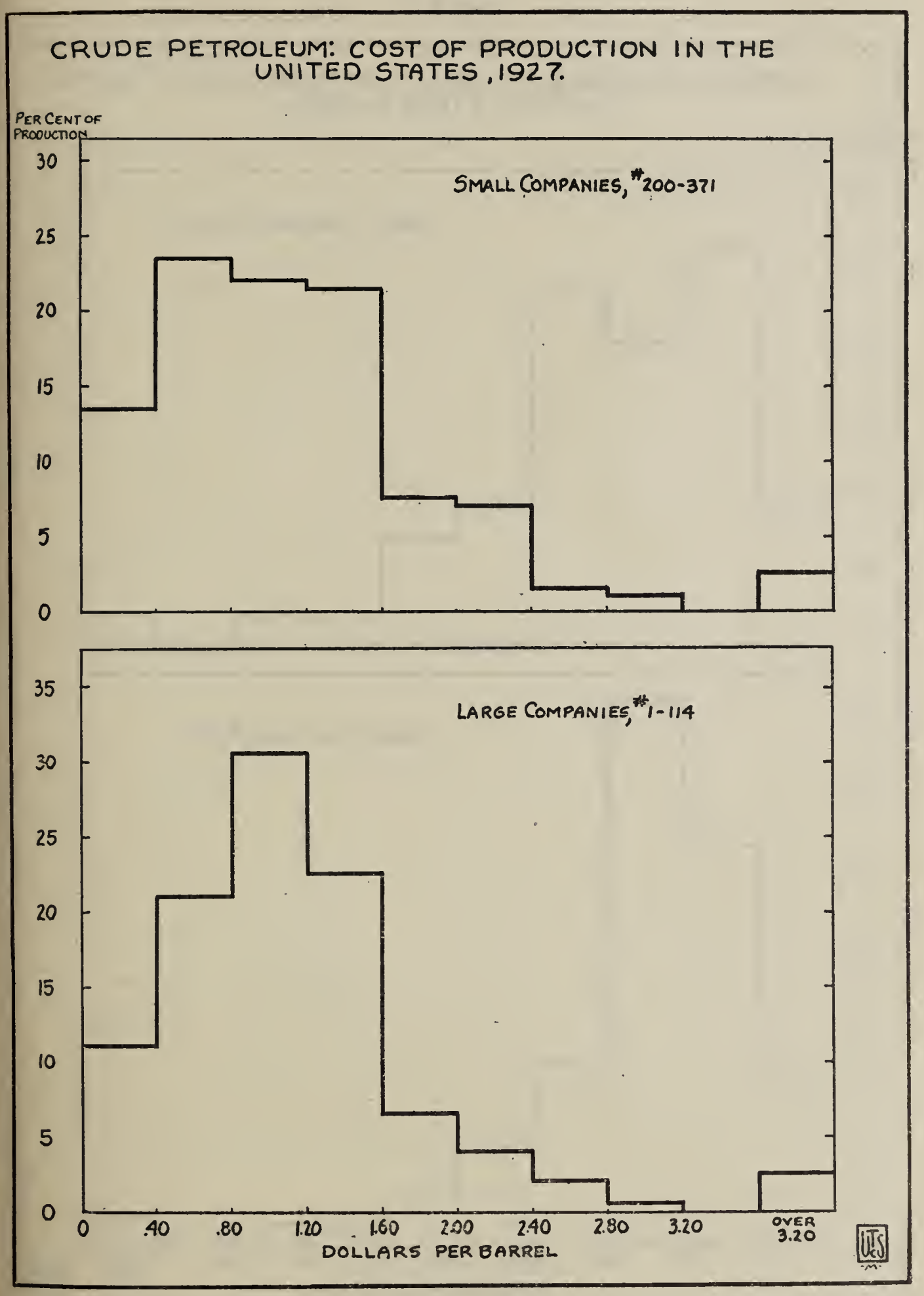
	Group I. Large companies			Group II. Small companies		
	1927	1928	1929	1927	1928	1929
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cen*
Less than 40 cents per barrel	11.09	10.68	13.17	13.45	8.89	3.9
Less than 80 cents per barrel	32.06	38.13	41.69	36.77	35.41	26.2
Less than $1.20 per barrel	62.30	74.09	74.34	58.65	55.51	49.7
Less than $1.60 per barrel	84.81	85.88	89.26	80.32	79.00	73.4
Less than $2 per barrel	91.42	92.36	94.64	88.02	87.83	82.6
Less than $2.40 per barrel	95.33	95.39	96.51	95.06	94.70	90.6
Less than $2.80 per barrel	97.13	96.41	97.52	96.28	96.26	92.6
Less than $3.20 per barrel	97.62	97.79	98.02	97.31	98.20	93.3
More than $3.20 per barrel	2.38	2.21	1.98	2.69	1.80	6.6

4. ARRAY OF COMPANIES ACCORDING TO AN ASCENDING SCALE O COSTS

In addition to the above-mentioned classification according t costs, the returns of each company, considered as a whole and inde pendent of its operations in different fields, were classified accordin to an ascending scale of average unit costs.

After the figures were arranged in this way, diagrams, in the form c cumulative cost figures, were drawn. (See figs. 4 to 9.) It is to b noted that the costs rise in a gradually ascending scale until nearl the entire quantity of oil has been covered, in each year, but that th latter end of the curve ascends very steeply. The costs represented b this right-hand end of the diagram, in each case, and covering in n instance more than 2 per cent of the entire quantity of oil produce are the costs of a few producers who met with extremely bad fortun In most of the cases they were producers who had spent considerab

FIGURE I



38855—31——4

FIGURE II

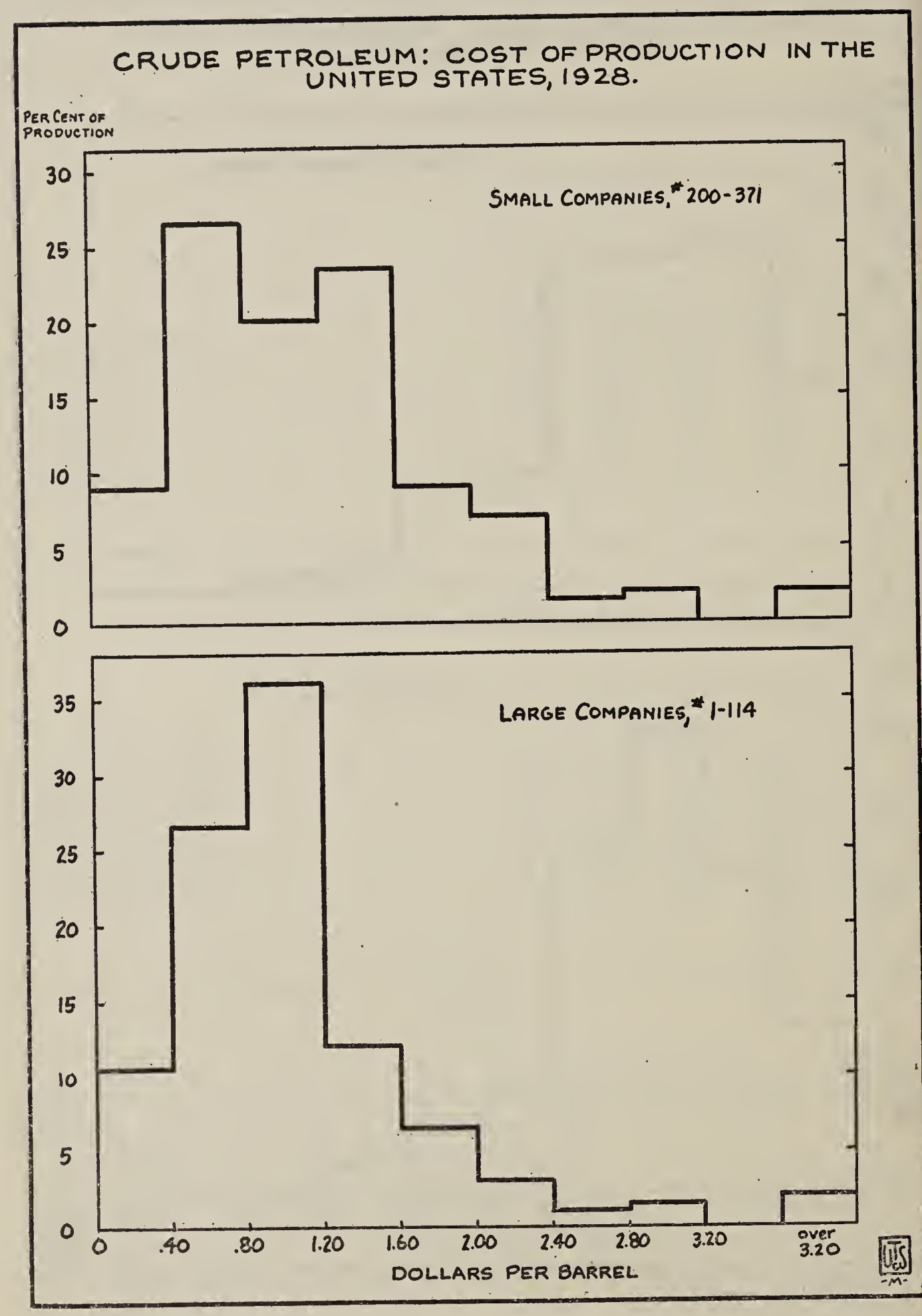
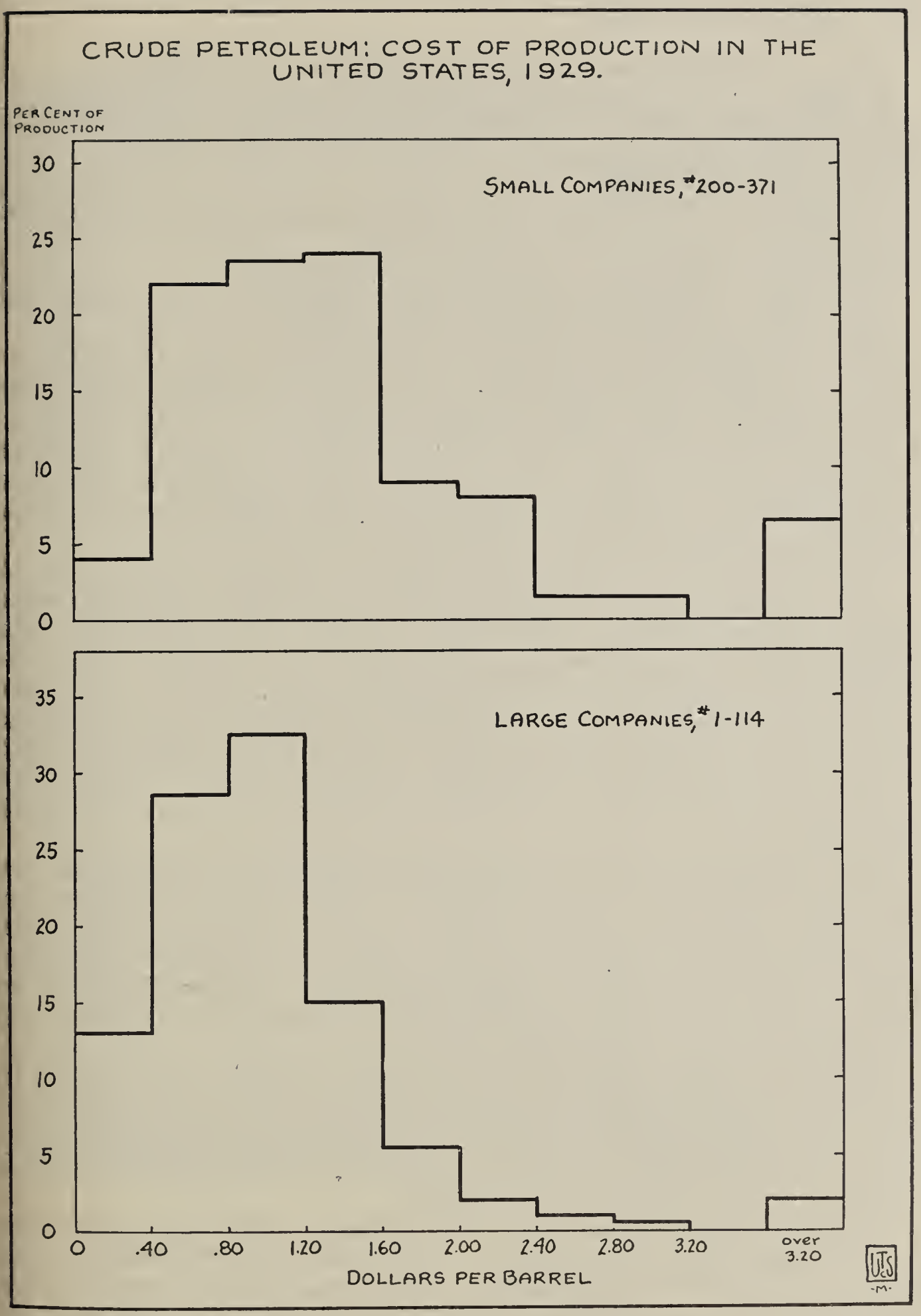

CRUDE PETROLEUM: COST OF PRODUCTION IN THE UNITED STATES, 1928.
PER CENT OF PRODUCTION
30
25
20
15
10
5
0
SMALL COMPANIES,* 200-371
35
30
25
20
15
10
5
0
LARGE COMPANIES,* 1-114
0
.40
.80
1.20
1.60
2.00
2.40
2.80
3.20
over 3.20
DOLLARS PER BARREL

FIGURE III


CRUDE PETROLEUM: COST OF PRODUCTION IN THE UNITED STATES, 1929.
PER CENT OF PRODUCTION
30
25
20
15
10
5
0
SMALL COMPANIES, #200-371
35
30
25
20
15
10
5
0
LARGE COMPANIES, #1-114
0
.40
.80
1.20
1.60
2.00
2.40
2.80
3.20
over 3.20
DOLLARS PER BARREL
U.T.S.
-M-

money in development but were only producing a very small quantity of oil. Costs ranging as high as $50 or $75 a barrel might have been considered wholly abnormal and thrown out of the tabulation entirely. This was not done, however, and they were included in making up the average cost figures, because those with extremely low costs were included.

5. Costs by States and Groups of States

For the purpose of the next tabulation, the States were arranged in the following groups:

Group (*a*).—California.

Group (*b*).—Oklahoma, Texas, Arkansas, Louisiana, Kansas, and New Mexico.

Group (*c*).—Wyoming, Colorado, and Montana.

Group (*d*).—Illinois, Indiana, Ohio, Kentucky, Tennessee, West Virginia, Pennsylania, New York, and Michigan.

It was considered that this was a natural grouping, since the conditions in California are distinctly different from those in the Mid-Continent-Gulf fields, which were put in group (b), while the Rocky Mountain section, included in group (c), and the States east of the Mississippi, put in group (d), also have entirely different conditions of production. In this tabulation the large companies of Group I were kept separate from the small companies of Group II.

Costs of the large companies, Group I, by States.—Analyzing the costs of the large companies, it is found that California had the lowest weighted average cost for the three years 1927–1929, inclusive. The weighted average cost for the three years for California companies was 75.8 cents per barrel. The weighted average cost for the three years for companies in the Mid-Continent-Gulf group of States was $1.099 per barrel. The average for the Rocky Mountain field, covering the States of Wyoming, Colorado, and Montana, was $1.057 per barrel and the average for the Eastern States was $2.655 per barrel.

The lowest State average cost for the large companies in 1927 was 68.6 cents per barrel for California. Excluding Tennessee and Michigan, where the quantity of oil covered by returns was insignificant, the highest cost for any State in that year was $4 in Pennsylvania. The lowest State average cost in 1927 for any State in the Mid-Continent-Gulf area was 91.8 cents per barrel for Arkansas, and the highest $1.88 for New Mexico.

The lowest State average for any State in 1928 was 80.6 cents for California and the highest (again not counting Tennessee and Michigan) was for Pennsylvania, $3.53. In the Mid-Continent-Gulf group in this year, 94 cents per barrel was shown for Texas while the cost in Arkansas rose to 98.5 cents per barrel.

The lowest State average cost for any State in 1929 was again shown for California, being 77 cents per barrel, while the highest cost was $3.84 per barrel for Pennsylvania. Texas showed the lowest cost of any State in the Mid-Continent-Gulf group in 1929, the cost being but 82.6 cents per barrel as against $1.16 per barrel in Oklahoma and $1.13½ per barrel in Arkansas.

Costs of small companies—Group II—by States.—Turning to the small companies, those in Group II, we find that the lowest weighted

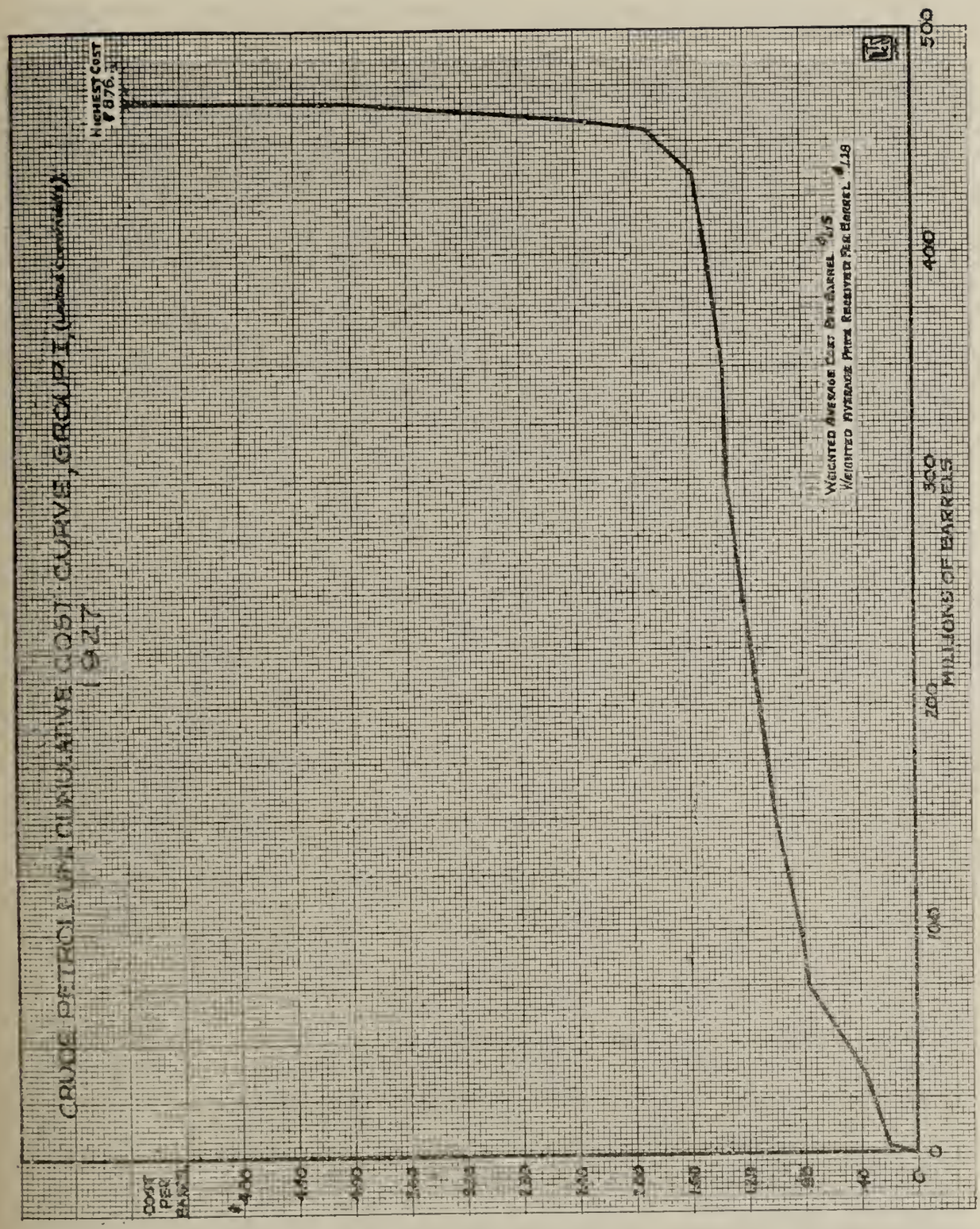

CRUDE PETROLEUM CUMULATIVE COST CURVE, GROUP I (Mid-Continent)
1927
HIGHEST COST
1876
COST PER BBL.
$4.00
3.50
3.00
2.50
2.00
1.50
1.00
.50
0
0
100
200
300
400
500
MILLIONS OF BARRELS
WEIGHTED AVERAGE COST PER BARREL $.75
WEIGHTED AVERAGE PRICE RECEIVED PER BARREL $1.18

FIGURE IV

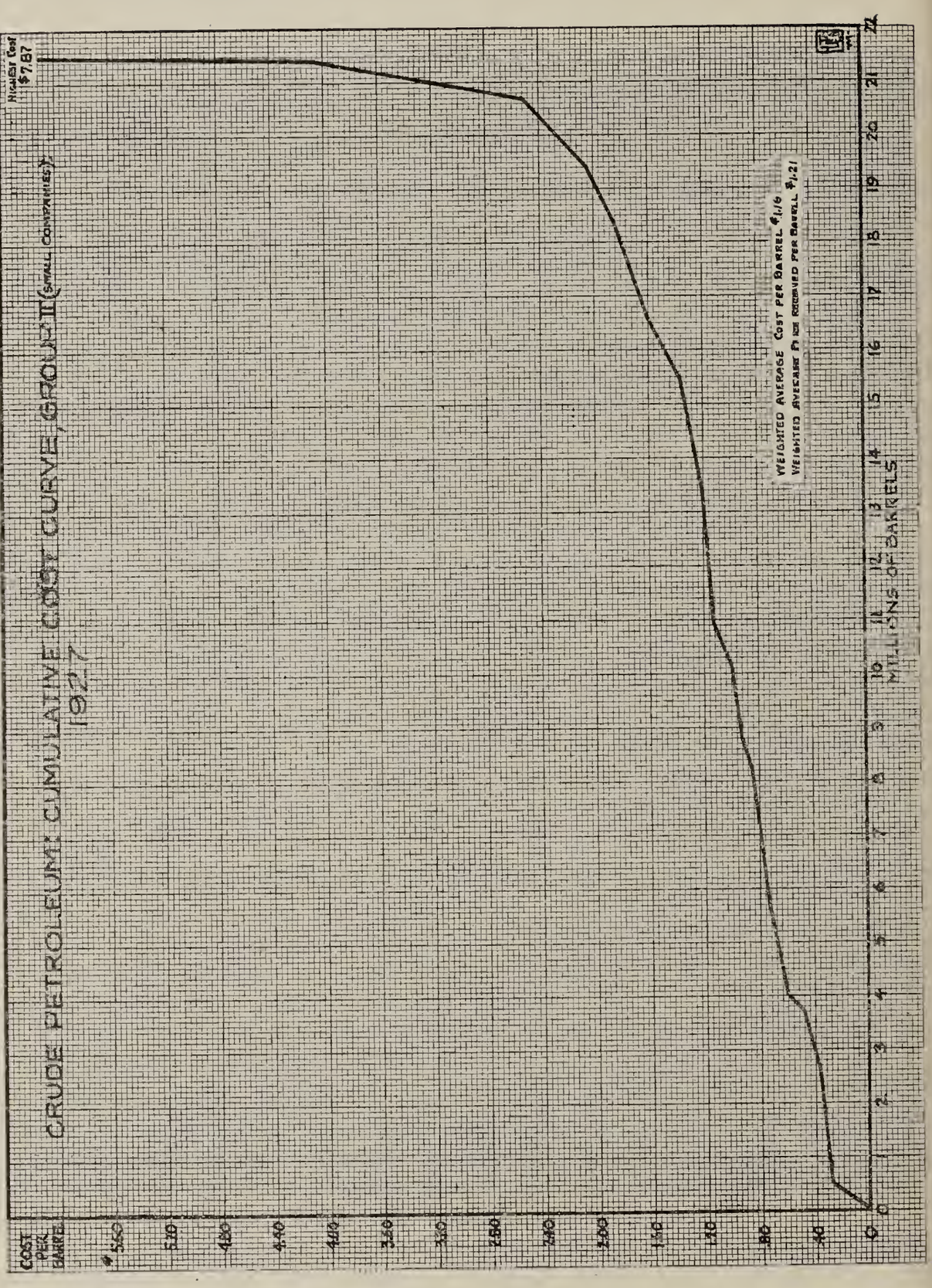

CRUDE PETROLEUM CUMULATIVE COST CURVE, GROUP II (SMALL COMPANIES)
1917
COST PER BARREL
HIGHEST COST $7.87
$5.60
5.10
4.80
4.40
4.00
3.60
3.20
2.80
2.40
2.00
1.60
1.20
.80
.40
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
MILLIONS OF BARRELS
WEIGHTED AVERAGE COST PER BARREL $1.16
WEIGHTED AVERAGE PRICE RECEIVED PER BARREL $1.21

FIGURE V

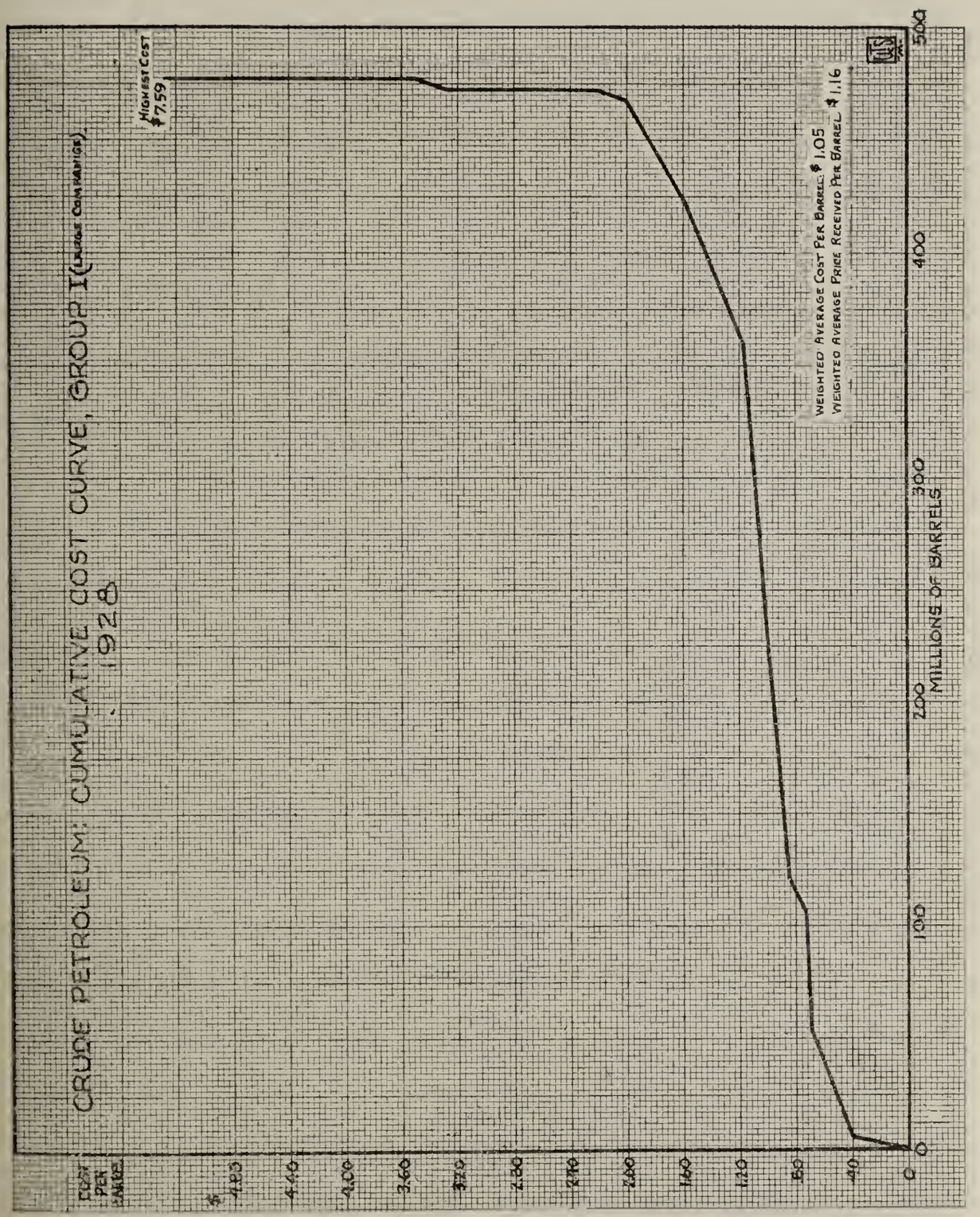

CRUDE PETROLEUM: CUMULATIVE COST CURVE, GROUP I (UNITED COMPANIES)
1928
HIGHEST COST $7.59
COST PER BARREL
$4.80
4.40
4.00
3.60
3.20
2.80
2.40
2.00
1.60
1.20
.80
.40
0
0
100
200
300
400
500
MILLIONS OF BARRELS
WEIGHTED AVERAGE COST PER BARREL $1.05
WEIGHTED AVERAGE PRICE RECEIVED PER BARREL $1.16

FIGURE VI

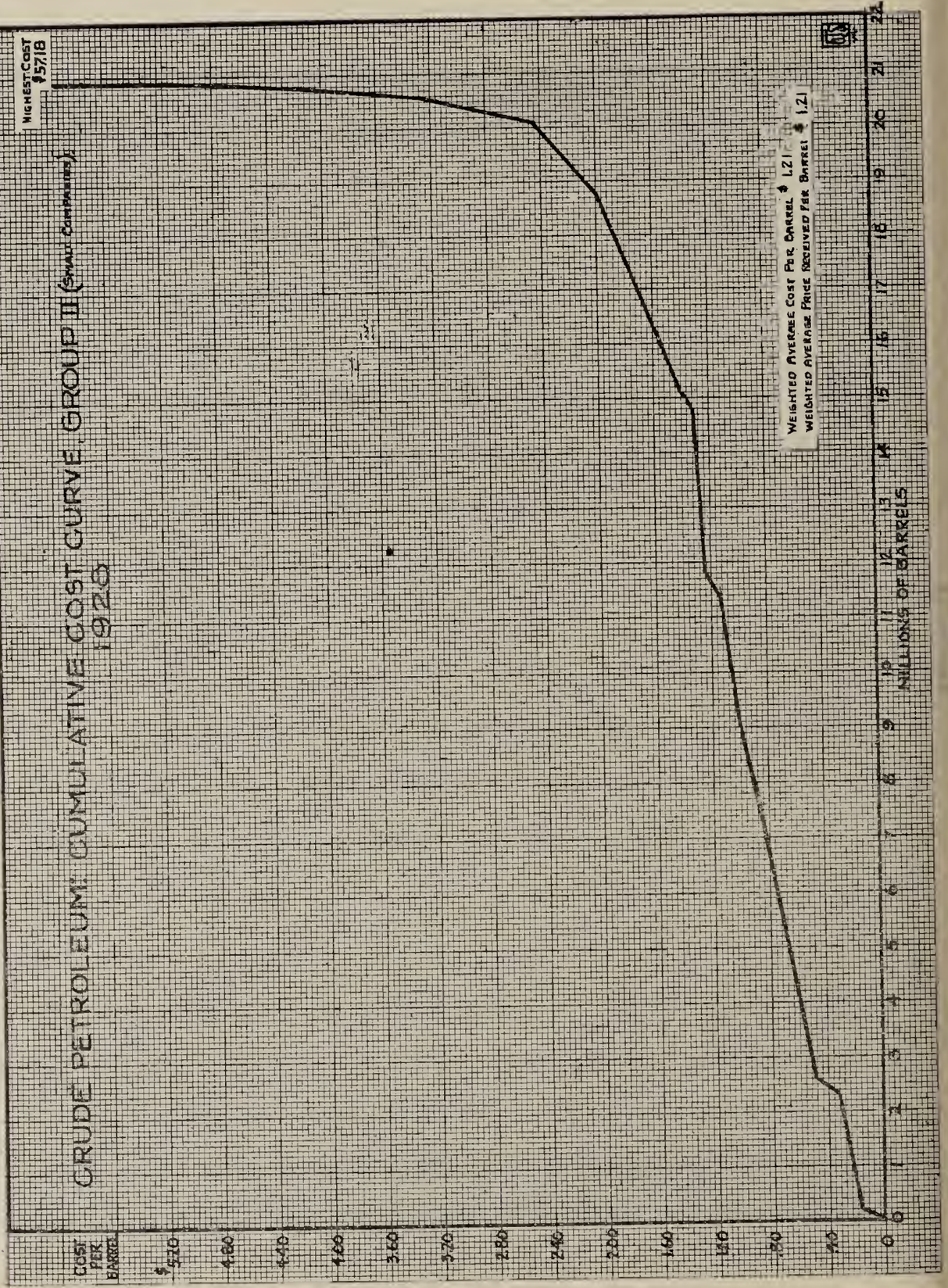

CRUDE PETROLEUM: CUMULATIVE COST CURVE, GROUP III (SMALL COMPANIES)
1920
HIGHEST COST $5.718
COST PER BARREL
$5.20
4.80
4.40
4.00
3.60
3.20
2.80
2.40
2.00
1.60
1.20
.80
.40
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
MILLIONS OF BARRELS
WEIGHTED AVERAGE COST PER BARREL $ 1.21
WEIGHTED AVERAGE PRICE RECEIVED PER BARREL $ 1.21

FIGURE VII

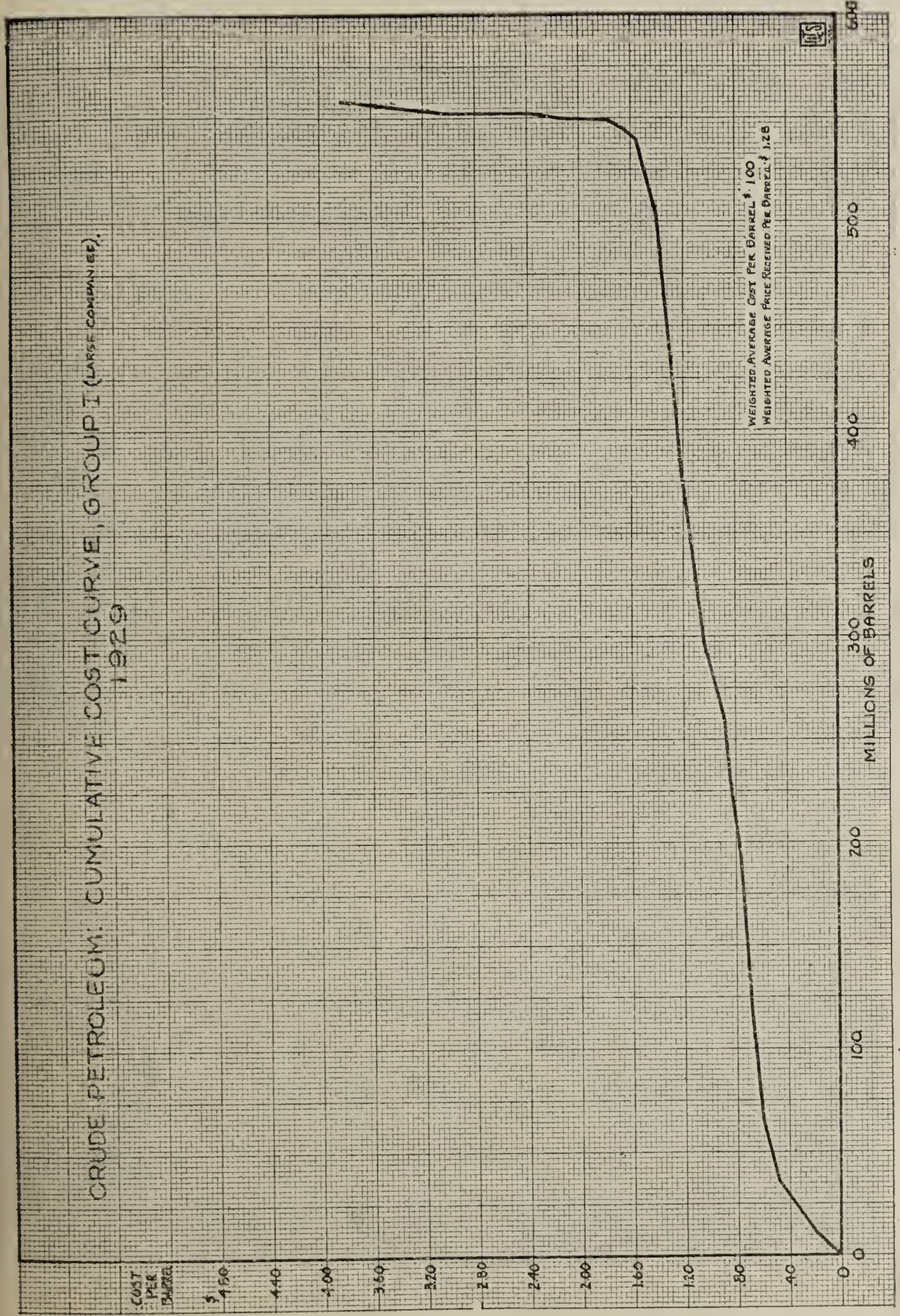

CRUDE PETROLEUM: CUMULATIVE COST CURVE, GROUP I (LARGE COMPANIES)
1929
COST PER BARREL
$ 4.50
4.40
4.00
3.60
3.20
2.80
2.40
2.00
1.60
1.20
.80
.40
0
0
100
200
300
400
500
600
MILLIONS OF BARRELS
WEIGHTED AVERAGE COST PER BARREL $ 1.00
WEIGHTED AVERAGE PRICE RECEIVED PER BARREL $ 1.28

FIGURE VIII

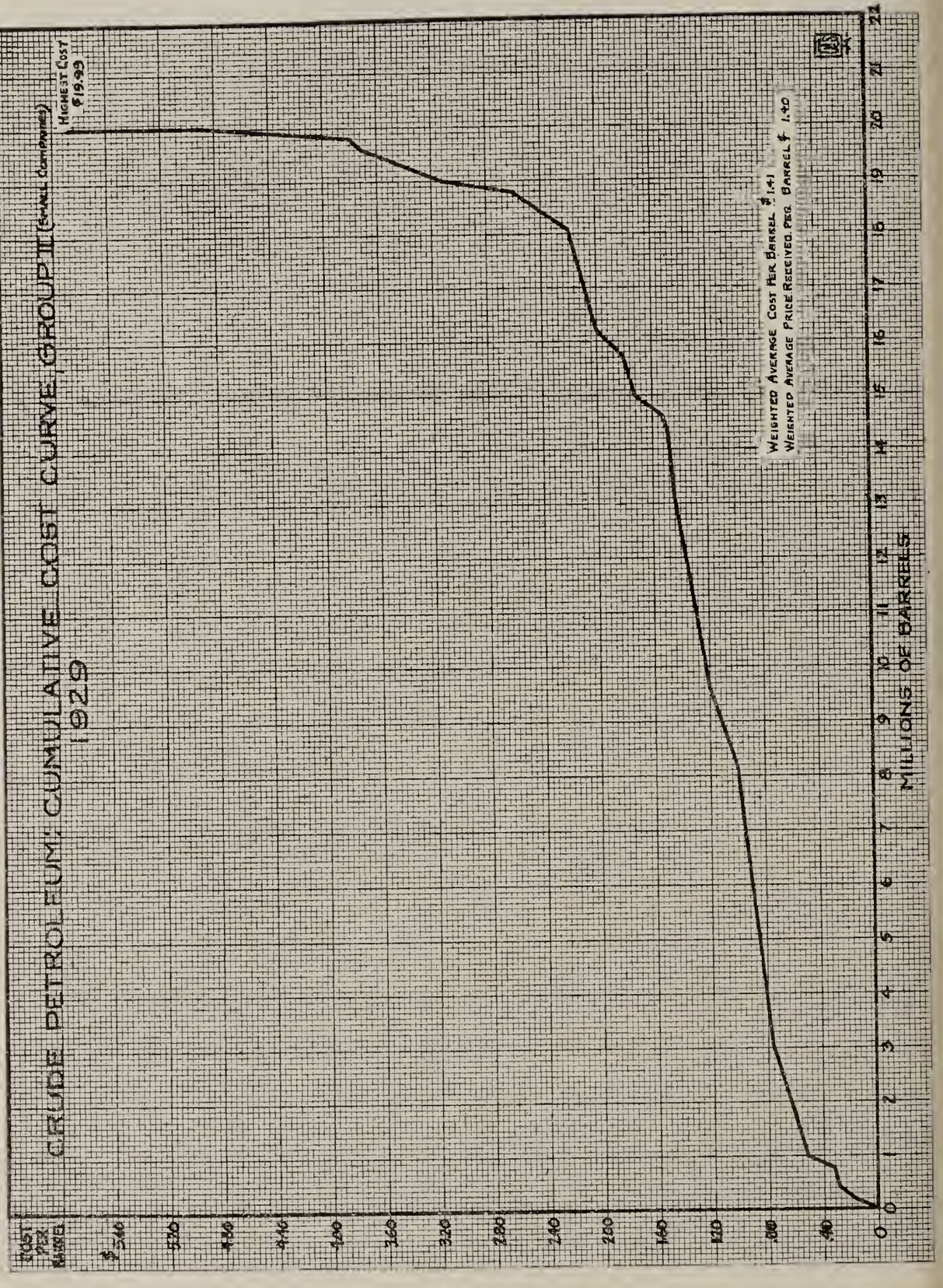

CRUDE PETROLEUM: CUMULATIVE COST CURVE, GROUP II (SMALL COMPANIES)
1929
HIGHEST COST $19.99
WEIGHTED AVERAGE COST PER BARREL $1.41
WEIGHTED AVERAGE PRICE RECEIVED PER BARREL $1.40
COST PER BARREL
$.40
.80
1.20
1.60
2.00
2.40
2.80
3.20
3.60
4.00
4.40
4.80
5.20
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
MILLIONS OF BARRELS

FIGURE IX

average cost for any of the four great regions for the three years, was for California, $1.05 per barrel; for the Mid-Continent-Gulf field it was $1.06 per barrel; for the Rocky Mountain field, $1.30 per barrel; and for the eastern field, $2.27 per barrel.

The lowest cost of small companies for any State in 1927 was for Arkansas, which had an average cost of 54.8 cents per barrel. The highest cost for any State in that year was $3.72 per barrel for West Virginia. The lowest cost for any State in 1928 was 76.7 cents per barrel for Arkansas and the highest for 1928 was $4.36 per barrel for West Virginia. The lowest cost for any State in 1929 was 76.4 cents per barrel for Arkansas; and the highest cost was $4.77 per barrel for West Virginia. Texas and Oklahoma had weighted average costs for the three years of $1 and $1.22 per barrel, respectively.

TABLE 19.—*Unit costs and sales value by States and averages for the three years, 1927–1929*

[Company-interest oil only]

State	Large companies			Small companies		
	Average annual production of reporting companies	Average cost per barrel, including interest	Average sales value per barrel	Average annual production of reporting companies	Average cost per barrel, including interest	Average sales value per barrel
California	100,349,872	$0.7583	$1.0683	7,045,335	$1.0539	$0.9096
Oklahoma	173,882,515	1.1645	1.4161	2,285,642	1.2236	1.3529
Texas	157,997,265	.9636	1.0832	5,332,781	.9962	1.0565
Arkansas	16,459,068	.9989	.9291	506,835	.6398	1.0440
Louisiana	15,234,411	1.4307	1.1990	112,409	1.1709	1.0350
Kansas	20,543,921	1.3937	1.4208	633,440	1.3366	1.4278
New Mexico	315,789	2.9469	1.3000			
Total	384,432,969	1.0991	1.2497	8,871,107	1.0609	1.2024
Wyoming	2,941,711	.9853	1.2299	1,629,844	1.2353	1.2899
Colorado	992,992	.9589	1.0936			
Montana	718,067	1.4909	1.7049	216,610	1.8286	1.7045
Total	4,652,770	1.0577	1.1667	1,846,454	1.3049	1.3386
Illinois	3,452,876	1.1952	1.6079	412,597	1.5015	1.6171
Indiana	137,504	2.0065	1.6156	14,354	1.9045	1.5485
Ohio	1,151,475	2.2167	1.8764	222,844	1.9940	1.9157
Kentucky	607,773	2.1815	1.6179	1,499,382	1.8602	1.7039
Tennessee	[1] 1,045	30.8338	1.5407			
West Virginia	604,447	2.0377	3.4659	91,873	4.3098	3.1981
Pennsylvania	5,776,618	3.7906	3.2468	555,473	3.1477	3.4549
New York				292,810	3.4089	3.5991
Michigan	329,973	1.7899	1.5707			
Total	12,061,711	2.6557	2.5111	3,089,333	2.2666	2.2457
Total, all States	501,497,322	1.0680	1.2432	20,852,229	1.2598	1.2701

[1] Reported for only 2 years, 1927 and 1928.

Although in the United States as a whole for each of the three years the average unit cost of production was higher for the small companies than for the large companies, there are numerous exceptions to this rule in individual States. In the entire group of Eastern States taken together the average costs of the small companies were lower in each year than those of the large companies, and the same was true in a number of individual States in other regions of the country. It is impossible to determine the relative efficiency of pro-

duction of large and small concerns from general averages for large areas. Costs often differ widely in different fields of the same State and the relation between the general average cost for large companies and for small companies in a State as a whole may be greatly affected by the geographic distribution of the wells of the respective groups of companies.

Relation of costs to sales value.—In comparing the average unit cost of production with the average unit sales value of petroleum in the several States, it should be borne in mind that the cost figures include interest on the investment of the companies at 6 per cent. For convenience one may speak of a loss where the average sales value is less than the average cost, including interest, but many companies which show a loss when thus computed are making at least some return on their investment. It is true, however, that in many cases the average realization is not sufficient to cover the operating expenses of production. Similarly, the word "profit" may for brevity be used to denote an excess of average-sales value above average cost of production including interest.

When the unit cost of production is compared with the unit sales value it is shown that the sales afforded a profit in the States of largest production in most of the individual years and that the weighted average unit sales value for the three years was greater than the weighted average unit cost of production. The States which showed the greatest departure from this rule were Louisiana, New Mexico, and Arkansas, among the States west of the Mississippi River. The group of Eastern States showed a loss on the whole for both large and small companies when weighted average sales value is compared with weighted average cost of production. However the quantity of production covered by the figures obtained by the commission for the Eastern States was not as large as for the Mid-Continent-Gulf area or for California and perhaps it can not be regarded as so completely representative of the costs in this area as are the costs for the Mid-Continent-Gulf field.

West Virginia was the only Eastern State in which the large company group showed a profit for all three years while in that State the small company group showed a loss in all three years. On the other hand, the small companies in Illinois and Pennsylvania showed a profit in all three years while the small companies in New York showed a profit in two years out of the three and a profit for the 3-year period as a whole.

In the case of the small companies the average unit sales value was less than the cost of production in California in each of the three years and the same was true of Group C (Rocky Mountain States) in 1928, and of Group D (Eastern States) in both 1927 and 1928. Otherwise the averages for the several groups show a profit for the smaller producers. In the individual States the relationship of costs and sales for the small companies varies considerably.

Items of costs by States.—The individual items of cost and the credits for sales of gas and miscellaneous revenue are shown by States in Tables 24 and 25.

The relative amounts expended under the different heads vary decidedly from State to State. These variations are affected by the physical conditions of production, such as the depth of the well and the average output per well, and also by the length of time during

which the oil fields have been worked. In the States which were actively developing their new oil resources during the period covered by the investigation, like California, Oklahoma, Texas, and New Mexico, the intangible development cost was a large item of expense. In the case of the large companies as a group this was the largest expense item in California and Oklahoma for the 3-year period as a whole. In the Eastern States, on the other hand, where there is less new development, current operating cost, depletion, and amortization bulked much larger than intangible development, although in Pennsylvania, in the case of both large and small companies, intangible development cost, while considerably less than operating cost, was larger than depletion or amortization.

General and administrative expense was a larger proportion of the total expense in the case of the large companies than the small companies, being for the country as a whole, roughly, one-fourth in the former and one-seventh in the latter case. Considering the large company group alone, the share of total expense reported for general and administrative expense was somewhat more than one-fourth in Texas, Louisiana, Kansas, and New Mexico, and a little less than one-fourth in California, Oklahoma, and Arkansas. In the small company group the proportion for general and administrative expense ran much less than one-fourth in all of the foregoing States except Kansas, in which it was more than one-fourth.

Interest at 6 per cent was computed on the investment of the companies and added to the other net costs to give a total cost. Interest on investment represented 8.3 per cent of the total cost thus computed in the case of the large companies, and 14.7 per cent in the case of small companies. The item of interest ran somewhat larger, relatively, for the Eastern than for the Western States in both the large and small company groups. For the large companies the share represented by interest in total cost of production was, on the average for the three years 1927–1929, 10.5 per cent in California, 6.9 per cent in Oklahoma, and 7.3 per cent in Texas.

6. Costs by Producing Districts or Fields

In the questionnaire sent to the oil producers, it was requested that the data pertaining to the costs of production be prepared by districts or pools. When these data were assembled it was found that some companies had reported their information lumped for an entire State, while others had presented theirs for each separate lease. There were varying conditions between these two extremes.

The oil producers were also asked to file with the questionnaire maps showing the location of the districts in which they were producing oil. In many instances these maps were not included. As many of the smaller pools are often known by several names and as many companies included a number of adjoining pools under the name of one pool of a group, it was found to be quite difficult to identify some of the pools without accompanying maps.

So many data were presented, covering so many different fields and pools, that it was found necessary to group the figures for the most part into a few large districts, some of which include a considerable number of pools, showing separately, however, figures for a few of the major individual pools of the country. Texas, for example,

was divided into such districts as west Texas, north Texas, etc., with separate data for such major fields as Mexia, Luling, and Big Lake. No division into pools or districts was made for the States of small production.

In some cases it was found difficult to separate one district absolutely from another. As an example, several companies reported costs for the Iatan district in Texas. This district includes several counties lying between what are commonly known as west Texas and north central Texas fields. Other companies have included production of the western counties of the Iatan districts in their costs for the west Texas field and for the eastern counties of the district in their costs for north central Texas. The classification of the returns by districts was finally made to conform with the returns of the majority of the companies which filed reports.

TABLE NO. 20.—*Crude-oil production: Unit cost and unit sales price, by districts*

GROUP I

District	1927			1928			1929			Three-year average	
	Production	Unit cost, including interest on investment	Unit sales price	Production	Unit cost, including interest on investment	Unit sales price	Production	Unit cost, including interest on investment	Unit sales price	Unit cost, including interest on investment	Unit sales price
California:	*Barrels*			*Barrels*			*Barrels*				
Long Beach, Seal Beach, Signal Hill	18,962,688	$0.60	$1.05	33,266,829	$0.62	$1.00	35,030,127	$0.55	$1.13	$0.59	$1.08
Santa Fe Springs	5,081,385	.71	1.18	6,223,159	1.59	1.22	36,205,457	1.03	1.37	1.07	1.33
Redonda-Torrance	3,732,717	.89	1.11	2,825,232	.90	1.08	2,388,467	1.06	.87	.94	1.04
Coalinga (light)	1,231,736	1.06	.83	482,082	2.05	.76	119,508	5.91	.60	1.64	.80
Coalinga (heavy)	1,009,920	1.06	.76	997,334	1.15	.77	1,088,914	1.15	.54	1.12	.68
Huntington Beach	5,026,280	.70	1.02	3,476,154	.82	.90	2,721,460	.92	.89	.79	.95
Kern River, Kern River Front, Mount Poso, Round Mountain	2,286,905	1.87	.79	2,021,495	1.78	.68	4,338,078	1.02	.51	1.42	.62
Elk Hills, McKittrick	1,310,503	.40	.81	1,234,808	.37	.80	1,087,598	.42	.66	.40	.76
Lawndale, Potrero, Rosecrans	1,105,752	1.06	1.57	857,593	1.68	1.52	1,100,388	1.53	1.70	1.40	1.60
Dominquez	3,481,436	.59	1.18	2,438,057	.87	1.12	1,983,329	.84	1.25	.74	1.18
Belridge, Lost Hills	1,197,385	1.09	.93	1,128,535	.96	.86	1,240,581	----------	.83	.60	.87
Ventura (Avenue)	13,649,364	.25	1.10	14,065,679	.50	.99	17,183,423	.60	1.15	.46	1.08
Buena Vista, Maricopa, Midway Sunset, Wheeler Ridge	10,769,904	.75	.71	8,857,218	.88	.89	8,313,770	.79	.79	.80	.79
Culver City, Inglewood, Montebello, Whittier	2,169,047	.63	.96	1,691,413	.76	.72	1,356,601	.95	.86	.75	.90
Arro Grande, Casmalia, Cat Canyon, Lompoc, Santa Maria	210,443	1.36	.95	195,788	1.33	.91	169,896	1.73	.91	1.46	.92
Barnsdale, Conejo, Newhall, Ojai, Peru, Santa Paula	14,908	.98	.87	25,540	2.72	.85	70,957	1.48	.86	1.70	.86
Brea-Olinda, Coyote Hills, East Coyote, West Coyote, Olinda, Richfield	6,418,932	.71	1.03	5,287,967	.74	.96	4,698,572	.85	.99	.76	1.00
Alamitos	256,143	2.83	.95	178,683	.72	1.01	1,144,396	.59	1.19	.97	1.13
Kettleman Hills	----------	----------	----------	2,663	.26	1.00	639,204	1.50	1.50	1.50	1.50
Baldwin Hills, La Helva, Merced Hills	3,170,538	1.18	.93	2,472,406	1.18	.91	2,885,856	1.15	.88	1.17	.91
Elwood, Rincon, Summerland	----------	----------	----------	572,174	1.20	1.44	7,896,239	.34	1.44	.40	1.44
Total	81,085,986	.69	1.00	88,300,809	.81	1.01	131,662,821	.77	1.15	.76	1.07

TABLE NO. 20.—*Crude-oil production: Unit cost and unit sales price, by districts*—Continued

GROUP I—Continued

District	1927			1928			1929			Three-year average	
	Production	Unit cost, including interest on investment	Unit sales price	Production	Unit cost, including interest on investment	Unit sales price	Production	Unit cost, including interest on investment	Unit sales price	Unit cost, including interest on investment	Unit sales price
	Barrels			*Barrels*			*Barrels*				
Texas:											
Panhandle	17,920,123	$1.52	$1.00	11,635,267	$1.30	$1.00	16,999,774	$1.00	$1.30	$1.28	$1.11
West Texas	24,646,670	.90	.76	67,928,681	.60	.63	73,312,562	.48	.83	.59	.74
North Texas	11,613,698	1.77	1.43	10,986,866	1.50	1.37	14,813,151	1.25	1.41	1.48	1.41
Mexia	8,498,240	1.87	1.45	5,724,868	2.23	1.38	4,966,783	2.18	1.43	2.06	1.42
Luling	5,627,182	1.14	1.10	4,887,200	1.35	1.04	13,654,963	.93	1.07	1.06	1.07
North central	10,734,960	1.66	1.53	11,851,836	1.29	1.37	14,134,885	1.23	1.74	1.37	1.56
East Texas	29,729	.64	1.45	30,048	14.27	1.43	28,113	7.93	1.47	9.58	1.45
South West Texas	1,014,517	1.57	1.07	1,213,504	1.35	1.01	1,350,281	1.40	.87	1.43	.98
Iatan	510,240	1.34	1.08	1,060,534	.91	.71	1,022,638	.91	.76	.99	.80
Gulf coast	36,532,891	.86	1.41	32,486,052	.93	1.18	37,681,123	1.03	1.25	.94	1.28
Big Lake	5,751,665	.64	1.26	4,612,982	.84	1.16	3,911,725	.68	1.28	.72	1.24
Corsicanna heavy	107,987	2.44	1.09	88,450	1.46	1.01	80,435	1.06	.82	1.72	.99
Mixed districts and others in Texas	4,234,180	.96	.95	5,686,838	.77	.75	6,620,175	.68	1.16	.78	.97
Total	127,222,062	1.20	1.20	158,193,126	.94	.94	188,576,608	.83	1.12	.96	1.08
Oklahoma:											
Bartlesville and Nowata, Rogers, Craig, Dewey, Washington Counties	1,126,292	2.82	1.30	1,163,458	2.35	1.19	1,339,591	2.31	1.26	2.48	1.25
Tulsa, Creek Counties	4,607,376	1.59	1.37	3,887,704	1.63	1.28	4,116,021	1.52	1.30	1.58	1.32
Wagoner, Muskogee, McIntosh Counties	87,089	2.55	1.37	81,357	3.76	1.32	257,379	1.64	1.43	2.00	1.40
Okmulgee, Okfuskee, Hughes Counties	2,443,299	1.62	1.45	1,936,805	1.80	1.45	1,821,696	1.96	1.53	1.77	1.47
Seminole, Pottowatomie Counties	5,150,183	1.24	1.58	5,594,250	1.27	1.59	4,740,482	1.48	1.49	1.32	1.43
Osage County	7,052,016	1.64	1.43	6,368,412	1.72	1.37	4,648,835	1.80	1.40	1.71	1.40
Pawnee, Payne, Lincoln Counties	3,450,762	1.72	1.47	2,520,862	1.71	1.43	2,238,700	1.82	1.50	1.74	1.47
Kay, Noble, Garfield, Grant Counties	14,247,343	1.14	1.58	8,731,266	1.24	1.57	6,708,519	1.23	1.49	1.19	1.56
Caddo, Grady, Comanche, Garvin Counties	255,612	1.70	1.31	205,110	2.10	1.18	347,390	1.47	1.12	1.70	1.20
Stephens, Cotton, Carter, Jefferson Counties	5,771,004	1.41	1.30	5,442,718	1.40	1.18	11,600,101	1.23	1.33	1.32	1.28
Burbank Field	5,195,551	1.51	1.47	3,154,364	1.64	1.36	2,169,859	1.38	1.41	1.52	1.41
Cushing Field	5,343,123	1.23	1.48	4,448,530	1.24	1.48	3,903,137	1.36	1.54	1.27	1.50
Oklahoma City Field				74,071	.71	1.41	3,879,039	.91	1.52	.90	1.52
Healdton Field	4,530,975	1.09	1.20	4,882,073	1.09	1.23	4,213,848	.99	1.09	1.05	1.11
Seminole Field	84,499,153	1.01	1.41	81,405,249	.94	1.43	85,635,218	1.04	1.49	1.00	1.44
Oklahoma State: Mid-Kansas Gas Co., Arkan-											
					1.07	1.30	26,042,119	1.19	1.43	1.39	1.40

Mixed districts in entire State	1,989,345	1.22	1.43	998,049	1.53	1.31	661,788	1.72	1.42	1.39	1.40
Counties: Beckham, Coal, Greer, Kiowa, Le Flore, Logan, Latimer, Marshall, Murray, Pittsburg, Sequoyah, Tillman	1,690,089	2.24	1.35	4,457,241	1.29	1.27	6,881,141	.84	1.37	1.18	1.34
Total	185,500,029	1.20	1.42	164,942,654	1.12	1.38	171,204,863	1.16	1.45	1.16	1.42
Kansas:											
Eldorado-Augusta	7,705,644	1.63	1.39	7,376,871	1.61	1.32	9,926,928	1.45	1.46	1.56	1.40
Greenwood and Woodson Counties	3,975,872	1.43	1.47	3,827,837	1.60	1.43	3,902,746	1.59	1.53	1.54	1.48
East Kansas	727,562	1.90	1.39	788,973	1.68	1.30	1,132,869	1.39	1.36	1.61	1.35
Russell County	426,520	1.40	1.50	277,930	1.93	1.40	266,861	1.98	1.42	1.71	1.45
Wichita	92,330	1.56	1.47	612,024	.98	1.44	3,791,663	1.03	1.65	1.04	1.62
Sumner County	6,871,003	1.22	1.37	6,146,755	1.09	1.35	1,297,787	1.30	1.48	1.17	1.37
Lyon County	37,556	1.04	1.51	20,295	1.70	1.45	12,767	1.39	1.52	1.29	1.49
Rice County and Hutchinson District	105,592	2.67	1.32	70,687	2.22	1.19	2,236,690	.49	1.41	.64	1.40
Total	19,942,079	1.46	1.40	19,121,372	1.43	1.35	22,568,311	1.30	1.49	1.39	1.42
Arkansas:											
Eldorado	8,281,913	.93	1.07	7,127,189	1.03	.89	5,805,872	1.54	.94	1.08	.97
Smackover	11,658,430	.91	1.02	8,983,288	.95	.79	7,520,511	.96	.84	.94	.90
Total	19,940,343	.92	1.04	16,110,477	.99	.83	13,326,383	1.14	.88	1.00	.93
Louisiana:											
Bull Bayou	499,568	2.14	1.46	664,799	1.50	1.39	668,254	1.85	1.42	1.80	1.42
Haynesville	11,280,897	1.30	1.18	9,011,244	1.37	1.09	7,188,880	1.59	1.14	1.40	1.14
Caddo	2,616,598	1.59	1.45	2,135,185	1.63	1.39	2,057,655	1.59	1.48	1.60	1.44
Gulf Coast	2,198,727	1.48	1.12	3,779,954	1.17	1.12	3,601,472	1.38	1.22	1.35	1.16
Total	16,595,790	1.40	1.22	15,591,182	1.36	1.15	13,516,261	1.55	1.23	1.43	1.20
Wyoming:											
Salt Creek	193,375	1.89	1.40	197,228	1.94	1.29	316,794	2.60	1.43	2.22	1.38
Big Muddy	151,043	.74	1.35	129,101	.64	1.29	368,777	1.77	1.41	1.31	1.37
Grass Creek	574,651	.72	1.44	514,849	.58	1.39	483,000	.70	1.54	.67	1.45
Rock River	530,762	.78	1.35	504,870	.71	1.29	528,706	.66	1.33	.72	1.32
All other districts in Wyoming	1,152,925	1.21	1.14	1,525,473	.82	1.04	1,653,580	.89	1.05	.95	1.07
Total	2,602,756	1.03	1.28	2,871,521	.83	1.17	3,350,857	1.08	1.24	.99	1.23
Colorado	1,152,183	.94	1.24	1,141,554	.95	1.01	685,239	1.00	.99	.96	1.09
Montana	770,521	1.18	1.54	583,054	1.52	1.74	800,626	1.77	1.83	1.49	1.70
New Mexico	267,740	1.88	1.39	203,408	2.00	1.30	476,221	3.95	1.25	2.95	1.30
Illinois	3,652,504	1.14	1.65	3,407,034	1.22	1.52	3,299,099	1.23	1.64	1.20	1.61
Indiana	137,038	2.30	1.65	142,613	1.88	1.53	132,862	1.84	1.67	2.01	1.62
Ohio	1,265,401	2.24	1.80	1,083,179	2.24	1.83	1,105,844	2.17	2.01	2.22	1.88
Kentucky	577,232	2.33	1.54	543,781	2.44	1.55	702,305	1.86	1.74	2.18	1.62
Tennessee	2,452	26.64	1.56	683	45.90	1.47				30.83	1.54
West Virginia	651,543	2.41	3.25	610,300	1.92	3.41	551,499	1.73	3.79	2.04	3.47
Pennsylvania	5,739,090	4.00	2.92	5,664,579	3.53	3.13	5,926,184	3.84	3.67	3.79	3.25
Michigan	9,864	8.36	1.93	61,789	5.82	1.56	918,265	1.45	1.57	1.79	1.57

TABLE 21.—*Crude oil production: Unit cost and unit sales price, by districts*

GROUP II

District	1927			1928			1929			Three-year average	
	Production	Unit cost, including interest on investment	Unit sales price	Production	Unit cost, including interest on investment	Unit sales price	Production	Unit cost, including interest on investment	Unit sales price	Unit cost, including interest on investment	Unit sales price
California:	*Barrels*			*Barrels*			*Barrels*				
Long Beach, Seal Beach, Signal Hill	1,193,520	$0.87	$1.02	1,606,847	$1.10	$1.01	1,437,246	$1.03	$1.14	$1.01	$1.06
Santa Fe Springs	335,664	.86	.98	260,888	2.07	1.36	760,539	2.22	1.26	1.86	1.21
Redondo Torrance	323,906	1.28	.93	215,331	1.26	.84	247,636	1.40	.40	1.31	.74
Coalinga (heavy)	188,005	.83	.91	170,191	.83	.74	163,735	.77	.60	.81	.77
Huntington Beach	753,745	1.15	1.11	506,277	.93	.87	386,491	1.64	.98	1.20	1.01
Kern River, Kern River Front, Mount Poso, and Round Mountain	750,795	.90	.77	887,585	.83	.73	598,889	1.01	.54	.90	.69
Elk Hills, McKittrick				102,633	1.38	.65	112,282	.99	.54	1.17	.64
Lawndale, Potrero, Rosencrans	100	179.44	1.92				31,421	1.08	.60	1.33	.60
Buena Vista, Maricopa, Midway Sunset, Wheeler Ridge	1,086,492	1.37	.80	1,332,762	1.07	.77	1,558,750	.91	.65	1.09	.73
Culver City, Inglewood, Montebello, Whittier	24,910	.89	.85	23,411	.91	.85	22,226	.83	.71	.88	.81
Arro-Grande, Casmalia, Cat Canyon, Lompoc, Santa Maria	472,079	.97	.81	408,812	1.17	.77	158,159	1.96	.63	1.20	.76
Barnsdale, Conejo, Newhall Ojai, Pira, Santa Paula, Sespic Semi				30,525	.32	.51	11,588	1.02	1.01	.52	.65
Brea-Olinda, Coyote Hills, East Coyote, Olinda, Richfield, West Coyote	1,073,742	1.03	1.01	1,243,644	1.13	1.16	1,300,800	.78	1.05	.97	1.01
Baldwin Hills, La Hubra, Merced Hills, Northern Western Orcutt	143,987		.91	653,029	.60	.83	557,362	.38	.95	.39	.89
Total	6,346,945	1.02	.93	7,441,935	1.05	.88	7,347,124	1 09	.92	1.05	.91
Texas:											
Pandhandle	773,653	.68	.91	927,054	.76	1.06	918,726	1.09	1.31	.85	1.10
West Texas	2,136,351	.32	.35	2,734.345	.40	.58	1,104,242	1.06	.95	.49	.56
North Texas	1,715,942	1.18	1.42	1,168,466	1.64	1.43	1,414,814	1.58	1.46	1.44	1.44
Mexia	181,585	.87	1.40	250,255	1.08	1.28	176,065	1.42	1.37	1.12	1.34
North central	404,735	1.79	1.40	390,307	1.76	1.40	342,708	1.77	1.47	1.78	1.42
East Texas	34,536	1.52	1.61	24,181	1.57	1.58	25,257	1.59	1.69	1.55	1.62
Gulf coast	472,354	1.03	1.16	437,041	1.60	1.29	365,728	1.54	1.21	1.37	1.22
Total	5,719,156	.81	.93	5,931,648	.91	.90	4,347,540	1.35	1.43	1.00	1.06

Oklahoma:											
Bartlesville and Nowata, Dewey, Craig, Rogers, Washington Counties	500,840	1.36	1.32	544.774	1.25	1.22	530,698	1.15	1.25	1.26	1.27
Creek, Tulsa Counties	260,606	1.93	1.36	219,548	1.41	1.27	275,112	1.26	1.26	1.54	1.30
McIntosh, Muskogee, Wagoner Counties	11,623	2.02	1.55	10,559	1.96	1.43	10,335	1.76	1.52	1.92	1.50
Hughes, Okfuskee, Okmulgee Counties	18,451	----------	1.36	12,878	----------	1.34	25,072	----------	1.59	----------	1.46
Seminole, Pottawatomie Counties	----------	----------	----------	5,413	2.86	1.39	141,277	1.44	1.53	1.49	1.53
Osage County	195,000	1.58	1.31	205,716	1.27	1.21	220,241	1.32	1.26	1.39	1.26
Lincoln, Pawnee, and Payne Counties	167,471	1.95	1.47	133,719	2.13	1.39	118,312	2.18	1.43	2.06	1.43
Kay, Noble, Garfield, and Grant Counties	43,079	1.17	1.53	27,114	----------	1.42	15,071	.09	1.52	.36	1.49
Caddo, Comanche, Grady, Garvin Counties	32,132	2.58	1.14	40,448	1.60	.74	33,181	.57	.75	1.57	.87
Stephens, Cotton, Carter, and Jefferson Counties	83,061	1.72	1.29	81,193	1.61	1.20	159,278	1.68	1.28	1.67	1.26
Cushing Field	106,374	.39	1.87	127,208	1.17	1.56	237,253	1.02	1.52	.92	1.61
Healdton Field	66,913	1.33	1.26	62,554	1.07	1.10	58,182	1.12	1.13	1.18	1.17
Seminole Field	1,105,702	.88	1.41	382,824	.75	1.41	318,164	1.15	1.43	.90	1.41
Mixed districts	8,464	4.12	1.41	8,926	2.08	1.38	8,424	1.54	1.43	2.57	1.41
Counties—											
Beckman, Coal, Greer, Kiowa, Le Flore, Logan, Latimer, Marshall, Murray, Pittsburg, Sequoyah, Tillman.	60,290	1.30	1.50	133,858	1.35	1.52	49,588	1.72	1.48	1.42	1.51
Total	2,660,006	1.22	1.40	1,996,732	1.22	1.31	2,200,188	1.24	1.34	1.22	1.35
Kansas:											
Eldorado-Augusta	46,159	.96	1.40	27,319	1.15	1.30	24,237	1.12	1.36	1.05	1.36
Greenwood and Woodson Counties	256,644	.85	1.53	166,968	1.07	1.45	114,346	1.59	1.51	1.08	1.50
East Kansas	114,975	2.12	1.25	146,649	1.69	1.20	164,223	1.45	1.23	1.71	1.22
Sumner County	365,602	1.34	1.48	229,532	1.42	1.47	243,665	1.29	1.54	1.35	1.49
Total	783,380	1.27	1.46	570,468	1.37	1.38	546,471	1.39	1.43	1.34	1.43
Arkansas:											
Eldorado	488,301	.81	1.15	332,240	.85	.94	246,717	.76	1.07	.81	1.07
Smackover	393,526	.22	1.01	59,719	.30	.85	----------	----------	----------	.23	1.00
Total	881,827	.55	1.09	391,959	.77	.92	246,717	.76	1.07	.64	1.04
Louisiana:											
Bull Bayou	97,105	1.15	1.12	----------	----------	----------	----------	----------	----------	1.15	1.12
Haynesville	50,778	.71	1.18	95,055	1.22	.90	56,277	1.01	.89	1.03	.96
Caddo	4,080	4.24	1.26	10,011	3.43	1.25	13,922	.91	1.32	2.29	1.28
Total	151,963	1.09	1.14	105,066	1.43	.93	80,199	1.00	.96	1.17	1.04

TABLE 21.—*Crude oil production: Unit cost and unit sales price, by districts*—Continued

GROUP II—Continued

District	1927			1928			1929			Three-year average	
	Production	Unit cost, including interest on investment	Unit sales price	Production	Unit cost, including interest on investment	Unit sales price	Production	Unit cost, including interest on investment	Unit sales price	Unit cost, including interest on investment	Unit sales price
	Barrels			*Barrels*			*Barrels*				
Wyoming:											
Salt Creek	1,501,710	$1.23	$1.38	1,317,526	$1.16	$1.29	1,167,977	$1.12	$1.31	$1.18	$1.33
Grass Creek	135,125	1.91	1.56	132,234	2.03	1.36	119,095	.82	1.50	1.62	1.47
All others	70,788	.98	.80	99,038	1.75	.76	346,038	1.42	.91	1.42	.86
Total	1,707,623	1.28	1.37	1,548,798	1.27	1.26	1,633,110	1.16	1.23	1.24	1.29
Montana	75,964	1.67	1.24	81,642	1.76	1.50	492,223	1.86	1.81	1.83	1.70
Illinois	422,560	1.64	1.68	417,878	1.43	1.52	397,354	1.43	1.66	1.50	1.62
Indiana	16,864	2.18	1.70	15,805	1.81	1.37	10,393	1.60	1.58	1.90	1.55
Ohio	262,100	1.81	1.84	222,450	2.01	1.76	183,983	2.25	2.21	2.00	1.92
Kentucky	1,751,395	1.87	1.66	1,294,772	1.90	1.64	1,451,980	1.82	1.82	1.86	1.70
West Virginia	89,120	3.72	2.87	83,482	4.36	3.06	103,017	4.77	3.60	4.31	3.20
Pennsylvania	509,900	2.93	3.08	532,587	2.82	3.33	623,933	3.60	3.87	3.15	3.46
New York	113,645	3.61	3.04	332,609	3.08	3.39	432,176	3.61	3.91	3.41	3.60

7. Tabulation of Costs by Gravity in Special Districts

The costs in selected districts were tabulated by gravity in an effort to discover whether there is any regular relationship between gravity and costs, between gravity and sales price, and also between costs and prices for the different gravities of oil. No regular relationship was discoverable between any of the above factors. Theoretically the higher gravity oil, being of better quality, would cost more to produce because presumably the companies would be willing to expend larger sums in development in fields where the higher gravity oil is likely to be produced. In practice, however, this does not hold true, if for no other reason than because it is almost impossible to predict the gravity of oil which will be produced, even when there is some basis of experience in the locality where development is being undertaken.

The relationship which might be expected between gravity and sales price is often upset by the transportation factor. Low-gravity oil near good pipe-line facilities might bring more than high-gravity oil which was disadvantageously located. Moreover, low-gravity oils sometimes have good lubricating properties, in which case they might bring more than a higher gravity oil of different quality. The prices of the purchasing companies customarily show a higher price offered for higher gravity oils, the spread generally shown being 2 to 4 cents per degree. This relationship holds good, however, only when other factors are equal, and the figures compiled by the commission seem to indicate that these other factors frequently upset the relationship based solely on gravity. The tabulation for three leading producing districts given below illustrates the foregoing points.

Table 22.—*Crude oil production costs and sales prices by gravity in selected districts, per barrel*

Degree of gravity and year	Texas, Gulf coast		Arkansas, Smackover		Louisiana, Haynesville	
	Net cost [1]	Sales price	Net cost [1]	Sales price	Net cost [1]	Sales price
19 or under:						
1927	$1.91	$1.31	$0.94	$1.02	$0.67	$0.58
1928	1.69	1.29	1.07	.77	1.63	.94
1929	1.48	1.34	1.28	1.05	1.21	.95
	1.71	1.31	1.07	.95	.99	.74
20 to 24:						
1927	1.09	1.24	.86	1.00	1.59	1.03
1928	1.18	1.19	.88	.77	1.60	.81
1929	1.23	1.19	.84	.83	2.41	.78
	1.16	1.21	.86	.88	1.72	.91
25 to 29:						
1927	.73	1.46	1.53	1.11	1.12	1.03
1928	.81	1.17	1.48	.97	1.66	.79
1929	.96	1.26	1.31	1.02	2.14	.85
	.84	1.30	1.46	1.05	1.59	.91
30 to 34:						
1927	2.13	1.33	1.68	1.32	1.21	1.21
1928	2.60	1.23	1.44	1.20	1.29	1.11
1929	1.70	1.20	1.15	1.23	1.54	1.13
	2.08	1.26	1.45	1.26	1.32	1.15
35 to 39:						
1927	2.64	1.52	1.11	1.40	1.61	1.40
1928	2.40	1.29	1.03	1.28	1.44	1.33
1929	1.15	1.19	1.26	1.31	1.44	1.38
	1.29	1.21	1.11	1.35	1.50	1.37
40 to 44:						
1927	171.09	1.46	----------	----------	4.18	1.60
1928	21.98	1.33	----------	----------	.57	1.35
1929	24.52	1.33	----------	----------	.87	1.40
	32.40	1.33	----------	----------	1.89	1.45

[1] Including interest.

8. Costs Including Royalty Oil

All the preceding tables of costs in Part III, as well as the cost computations in Part II, of this report have been based on company-interest oil only. As already stated, there is a certain significance in considering the relative importance of the different items of expense when the value of royalty oil is considered as one item of cost, and when the divisor used in calculating the averages includes the total quantity of oil produced, both that going to the producing company and that going as royalty to the landowner. Such a presentation is made in Table 23.

It will be seen that the value of royalty oil, which represented for the United States as a whole between 13 and 14 per cent of the total quantity of oil produced, was equal, on the basis of the market prices at the time of production, to 17 cents per barrel of crude oil produced, this item representing 15½ per cent of the total net cost of production as thus computed. On the average for the three years the cost of production of oil including royalty oil as an element of cost was $1.10 per barrel in the United States as a whole, as compared with $1.08 per barrel when the calculation is based on company-interest oil only. The difference is due to the fact that the average market price of royalty oil is somewhat greater than the average cost of producing it.

Table 23.—*Average cost per barrel at wells in the United States, large and small companies combined*

[Based on company and royalty oil]

	1927	1928	1929	Weighted average, 1927-29	Per cent
Production (thousands barrels)	564,964	577,439	671,612	1,814,015	
Expenses:					
Depletion of leasehold	$0.11	$0.09	$0.09	$0.10	9.(
Amortization of tangible development	.15	.14	.13	.14	12.7
Intangible development	.23	.20	.23	.22	20.(
Current operating cost	.28	.27	.25	.27	24.5
General and administrative	.24	.23	.21	.22	20.(
Total	1.01	.93	.91	.95	86.3
Value of royalty oil at market price	.17	.16	.18	.17	15.4
Total including royalty	1.18	1.09	1.09	1.12	101.3
Deduct receipts from gas sales and miscellaneous revenue	.09	.10	.10	.10	9.(
Net Cost	1.09	.99	.99	1.02	92.
Interest on investment (6 per cent)	.08	.08	.07	.08	7.
Net cost, including royalty value and interest	1.17	1.07	1.06	1.10	100.
Average selling price	1.28	1.16	1.28	1.24	

TABLE 24.—*Petroleum: Unit cost of production and sales value by States, 1927–1929*

GROUP I

Year	State	Production company interest	Expenses						Less gas sales and miscellaneous revenue	Net cost	Interest on investment	Net cost including interest	Unit sales value
			Depletion	Amortization of tangible development	Intangible development	Operating cost	General and administrative	Total					
		Barrels											
1927	California, Group A	81,085,986	$0.07	$0.15	$0.23	$0.27	$0.14	$0.86	$0.25	$0.61	$0.08	$0.69	$1.00
1928	do	88,300,809	.07	.15	.30	.27	.16	.95	.23	.72	.09	.81	1.01
1929	do	131,662,821	.08	.16	.33	.21	.14	.91	.22	.69	.08	.77	1.15
	Total, 3 years	301,049,616	.07	.15	.30	.24	.15	.91	.23	.68	.08	.76	1.07
1927	Oklahoma	185,500,029	.14	.20	.34	.24	.27	1.19	.07	1.12	.08	1.20	1.42
1928	do	164,942,654	.14	.19	.26	.27	.27	1.13	.10	1.03	.09	1.12	1.38
1929	do	171,204,863	.13	.18	.30	.28	.29	1.18	.10	1.08	.08	1.16	1.45
	Total, 3 years	521,647,546	.14	.19	.30	.26	.28	1.17	.09	1.08	.08	1.16	1.42
1927	Texas	127,222,062	.12	.15	.26	.29	.34	1.16	.05	1.11	.09	1.20	1.20
1928	do	158,193,126	.08	.11	.20	.23	.29	.91	.04	.87	.07	.94	.94
1929	do	188,576,608	.08	.11	.18	.22	.23	.82	.06	.76	.07	.83	1.12
	Total, 3 years	473,991,796	.09	.12	.21	.24	.28	.94	.05	.89	.07	.96	1.08
1927	Arkansas	19,940,343	.10	.16	.03	.35	.24	.88	.04	.84	.08	.92	1.04
1928	do	16,110,477	.09	.19	.06	.39	.21	.94	.04	.90	.09	.99	.83
1929	do	13,326,383	.09	.19	.07	.46	.28	1.09	.05	1.04	.10	1.14	.88
	Total, 3 years	49,377,203	.09	.18	.05	.40	.24	.96	.05	.91	.09	1.00	.93
1927	Louisiana	16,595,790	.10	.21	.20	.52	.37	1.40	.08	1.32	.08	1.40	1.22
1928	do	15,591,182	.11	.21	.19	.52	.38	1.41	.13	1.28	.08	1.36	1.15
1929	do	13,516,261	.12	.20	.29	.54	.42	1.57	.11	1.46	.09	1.55	1.23
	Total, 3 years	45,703,233	.11	.20	.22	.53	.39	1.45	.10	1.35	.08	1.43	1.20
1927	Kansas	19,942,079	.13	.23	.21	.34	.44	1.35	.03	1.32	.14	1.46	1.40
1928	do	19,121,372	.11	.25	.21	.34	.44	1.35	.02	1.33	.10	1.43	1.35
1929	do	22,568,311	.09	.24	.31	.29	.30	1.23	.02	1.21	.09	1.30	1.49
	Total, 3 years	61,631,762	.11	.24	.25	.32	.39	1.31	.03	1.28	.11	1.39	1.42

TABLE 24.—*Petroleum: Unit cost of production and sales value by States, 1927–1929*—Continued

GROUP I—Continued

Year	State	Production company interest	Expenses						Less gas sales and miscellaneous revenue	Net cost	Interest on investment	Net cost including interest	Unit sales value
			Depletion	Amortization of tangible development	Intangible development	Operating cost	General and administrative	Total					
		Barrels											
1927	New Mexico	267,740	$0.05	$0.12	$0.96	$0.19	$0.49	$1.81	$0.02	$1.79	$0.09	$1.88	$1.39
1928	do	203,408	.05	.15	.76	.21	.76	1.93	.02	1.91	.09	2.00	1.30
1929	do	476,221	.41	.17	1.58	.16	1.71	3.85	.08	3.77	.18	3.95	1.25
	Total, 3 years	947,369	.23	.15	1.13	.19	1.16	2.86	.05	2.81	.14	2.95	1.30
1927	Total, Group B	369,468,043	.13	.18	.28	.28	.31	1.18	.06	1.12	.09	1.21	1.31
1928	do	374,162,219	.11	.16	.22	.27	.29	1.05	.07	.98	.09	1.07	1.16
1929	do	409,668,647	.10	.15	.24	.27	.27	1.03	.08	.95	.08	1.03	1.27
	Total, 3 years	1,153,298,909	.11	.17	.25	.27	.29	1.09	.07	1.02	.08	1.10	1.25
1927	Wyoming	2,602,756	.04	.17	.20	.42	.18	1.01	.07	.94	.09	1.03	1.28
1928	do	2,871,521	.04	.18	.11	.33	.15	.81	.09	.72	.11	.83	1.17
1929	do	3,350,857	.27	.15	.08	.30	.23	1.03	.08	.95	.13	1.08	1.24
	Total, 3 years	8,825,134	.12	.17	.12	.35	.19	.95	.08	.87	.12	99	1.23
1927	Colorado	1,152,183	.04	.17	.35	.27	.10	.93	.06	.87	.07	.94	1.24
1928	do	1,141,554	.04	.21	.43	.25	.10	1.03	.20	.83	.12	.95	1.01
1929	do	685,239	.06	.32	.14	.31	.10	.93	.14	.79	.21	1.00	.99
	Total, 3 years	2,978,976	.05	.22	.33	.27	.10	.97	.13	.84	.12	.96	1.09
1927	Montana	770,521	.21	.14	.37	.27	.12	1.11	.03	1.06	.10	1.18	1.54
1928	do	583,054	.18	.21	.28	.51	.22	1.40	.03	1.37	.15	1.52	1.74
1929	do	800,626	.22	.20	.48	.46	.33	1.69	.09	1.60	.17	1.77	1.83
	Total, 3 years	2,154,201	.21	.18	.39	.40	.22	1.40	.05	1.35	.14	1.49	1.70
1927	Total, Group C	4,525,460	.07	.17	.27	.35	.15	1.01	.06	.95	.09	1.04	.98
1928	do	4,596,129	.06	.19	.21	.33	.15	.94	.11	.83	.11	.94	1.20
1929	do	4,836,722	.23	.18	.16	.33	.23	1.13	.09	1.04	.15	1.19	1.30
	Total, 3 years	13,958,311	.12	.18	.21	.34	.18	1.03	.09	.94	.12	1.06	1.17

1927	Illinois	3,652,504	.14	.14	.05	.64	.10	1.07	.04	1.03	.11	1.14	1.65
1928	do	3,407,024	.13	.14	.01	.73	.14	1.15	.04	1.11	.11	1.22	1.52
1929	do	3,299,099	.14	.15	.02	.71	.15	1.17	.04	1.13	.10	1.25	1.64
	Total, 3 years	10,358,627	.14	.14	.03	.69	.13	1.13	.04	1.09	.11	1.20	1.61
1927	Indiana	137,038	.13	.26	.48	.96	.27	2.10	.04	2.06	.24	2.30	1.65
1928	do	142,613	.12	.36	.06	.89	.26	1.69	.04	1.68	.23	1.88	1.53
1929	do	132,862	.12	.36	.02	.90	.26	1.66	.04	1.62	.22	1.84	1.67
	Total, 3 years	412,513	.12	.33	.19	.92	.26	1.82	.04	1.78	.23	2.01	1.62
1927	Ohio	1,265,401	.20	.42	.41	1.06	.44	2.53	.49	2.04	.20	2.24	1.80
1928	do	1,083,179	.22	.34	.19	1.11	.46	2.32	.29	2.03	.21	2.24	1.83
1929	do	1,105,844	.22	.32	.25	1.04	.36	2.19	.21	1.98	.19	2.17	2.01
	Total, 3 years	3,454,424	.21	.37	.29	1.07	.42	2.36	.34	2.02	.20	2.22	1.88
1927	Kentucky	577,232	.52	.28	.36	.62	.45	2.23	.03	2.20	.13	2.33	1.54
1928	do	543,781	.52	.29	.45	.59	.46	2.31	.02	2.29	.15	2.44	1.55
1929	do	702,305	.28	.26	.21	.46	.55	1.76	.02	1.74	.12	1.86	1.74
	Total, 3 years	1,823,318	.42	.28	.33	.54	.50	2.07	.02	2.05	.13	2.18	1.62
1927	Tennessee	2,452			12.46	2.21	11.78	26.45		26.45	.19	26.64	1.56
1928	do	683	10.70	13.37	.53	3.03	17.58	45.21		45.21	.69	45.90	1.47
1929	do												
	Total, 3 years	3,135	2.33	2.91	9.86	2.39	13.04	30.53		30.53	.30	30.83	1.54
1927	West Virginia	651,543	.79	.38	.51	.42	.89	2.99	.88	2.11	.30	2.41	3.25
1928	do	610,300	.60	.38	.40	.49	.77	2.64	.99	1.65	.27	1.92	3.41
1929	do	551,499	.57	.47	.46	.54	.68	2.72	1.25	1.47	.26	1.73	3.79
	Total, 3 years	1,813,342	.66	.41	.46	.48	.78	2.79	1.03	1.76	.28	2.04	3.64
1927	Pennsylvania	5,739,090	.16	.33	.45	2.90	.46	4.30	.75	3.55	.45	4.00	2.92
1928	do	5,664,579	.15	.31	.32	2.56	.58	3.92	.83	3.09	.44	3.53	3.15
1929	do	5,926,184	.13	.30	.43	2.72	.56	4.14	.71	3.43	.41	3.84	5.67
	Total, 3 years	17,329,853	.15	.31	.40	2.73	.53	4.12	.76	3.36	.43	3.79	3.25
1927	Michigan	9,864	.01	.69	4.75	.38	2.40	8.23		8.23	.13	8.36	1.93
1928	do	61,789		.16	2.39	.58	2.59	5.72		5.72	.10	5.82	1.56
1929	do	918,265	.02	.19	.63	.11	.48	1.43	.03	1.40	.05	1.45	1.57
	Total, 3 years	989,918	.02	.19	.78	.14	.64	1.77	.03	1.74	.05	1.79	1.57
1927	Total, Group D	12,035,124	.21	.28	.33	1.75	.38	2.95	.47	2.48	.29	2.77	2.35
1928	do	11,513,948	.19	.26	.24	1.65	.45	2.79	.50	2.29	.29	2.58	2.45
1929	do	12,636,058	.16	.26	.31	1.62	.43	2.78	.42	2.36	.26	2.62	2.72
	Total, 3 years	36,185,130	.19	.27	.29	1.67	.42	2.84	.46	2.38	.28	2.66	2.51
1927	Total, all States	467,114,613	.12	.18	.27	.32	.28	1.17	.11	1.06	.09	1.15	1.28
1928	do	478,573,105	.10	.16	.23	.31	.27	1.07	.11	.96	.09	1.05	1.16
1929	do	558,804,248	.10	.16	.26	.28	.24	1.04	.12	.92	.08	1.00	1.28
	Total, 3 years	1,504,491,966	.11	.16	.26	.30	.26	1.09	.11	.98	.09	1.07	1.24

TABLE 25.—*Petroleum: Unit cost of production and sales value by States, 1927–1929*

GROUP II

	Production company interest	Expenses						Less gas sales and miscellaneous revenue	Net cost	Interest on investment	Net cost, including interest	Unit sales value
		Depletion	Amortization of tangible development	Intangible development	Operating cost	General and administrative	Total					
California, Group A:	*Barrels*											
1927	6,346,945	$0.19	$0.20	$0.15	$0.46	$0.12	$1.12	$0.28	$0.84	$0.18	$1.02	$0.93
1928	7,441,935	.19	.20	.19	.34	.11	1.03	.14	.89	.16	1.05	.88
1929	7,347,124	.18	.21	.30	.33	.11	1.13	.20	.93	.16	1.09	.92
Total, 3 years	21,136,004	.19	.20	.22	.37	.11	1.09	.21	.88	.17	1.05	.91
Oklahoma:												
1927	2,660,006	.15	.26	.18	.41	.24	1.24	.17	1.07	.15	1.22	1.40
1928	1,996,732	.19	.21	.05	.52	.26	1.23	.16	1.07	.15	1.22	1.51
1929	2,200,188	.17	.21	.16	.49	.24	1.27	.16	1.11	.13	1.24	1.34
Total, 3 years	6,856,926	.17	.23	.14	.47	.24	1.25	.17	1.08	.14	1.22	1.35
Texas:												
1927	5,719,156	.17	.12	.11	.27	.10	.77	.03	.74	.07	.81	.93
1928	5,931,649	.15	.12	.12	.32	.15	.86	.05	.81	.10	.91	.90
1929	4,347,540	.32	.14	.16	.46	.23	1.31	.13	1.18	.17	1.35	1.43
Total, 3 years	15,998,345	.20	.13	.13	.34	.15	.95	.06	.89	.11	1.00	1.06
Arkansas:												
1927	881,827	.08	.07	----------	.28	.09	.52	----------	.52	.03	.55	1.09
1928	391,959	.13	.13	----------	.38	.07	.71	----------	.71	.06	.77	.92
1929	246,717	.12	.12	----------	.36	.10	.70	----------	.70	.06	.76	1.07
Total, 3 years	1,520,503	.10	.10	----------	.32	.08	.60	----------	.60	.04	.64	1.04
Louisiana:												
1927	151,963	.16	.20	----------	.51	.12	.99	----------	.99	.10	1.09	1.14
1928	105,066	.13	.22	.19	.66	.08	1.28	----------	1.28	.15	1.43	.93
1929	80,199	.09	.20	.06	.39	.08	.82	----------	.82	.18	1.00	.96
Total, 3 years	337,228	.13	.21	.07	.53	.10	1.04	----------	1.04	.13	1.17	1.04

Kansas:												
1927	783,380	.19	.27	.14	.30	36	1.26	.08	1.18	.09	1.27	1.46
1928	570,468	.15	.23	.18	.35	.45	1.36	.08	1.28	.09	1.37	1.38
1929	546,471	.15	.24	.22	.36	.40	1.37	.06	1.31	.08	1.39	1.43
Total, 3 years	1,900,319	.17	.25	.17	.33	.40	1.32	.07	1.25	.09	1.34	1.43
Total, Group B:												
1927	10,196,332	.16	.17	.12	.31	.15	.91	.07	.84	.09	.93	1.11
1928	8,995,874	.16	.15	.10	.37	.19	.97	.07	.90	.11	1.01	1.16
1929	7,421,115	.25	.17	.16	.46	.24	1.28	.13	1.15	.15	1.30	1.39
Total, 3 years	26,613,321	.18	.16	.13	.37	.19	1.03	.08	.95	.11	1.06	1.20
Wyoming:												
1927	1,707,623	.40	.30	.07	.36	.12	1.25	.11	1.14	.14	1.28	1.37
1928	1,548,798	.38	.33	.05	.32	.10	1.18	.07	1.11	.16	1.27	1.26
1929	1,633,110	.37	.09	.15	.32	.13	1.06	.08	.98	.18	1.16	1.23
Total, 3 years	4,889,531	.39	.24	.09	.33	.11	1.16	.08	1.08	.16	1.24	1.29
Montana:												
1927	75,964	.27	.05	.84	.10	.23	1.49	.01	1.48	.19	1.67	1.24
1928	81,642	.30	.20	.57	.39	.25	1.71	.04	1.67	.09	1.76	1.50
1929	492,223	.12	.31	.64	.52	.19	1.78	.12	1.66	.20	1.86	1.81
Total, 3 years	649,829	.16	.27	.65	.46	.20	1.74	.10	1.64	.19	1.83	1.70
Total, Group C:												
1927	1,783,587	.40	.29	.10	.35	.12	1.26	.10	1.16	.13	1.29	1.37
1928	1,630,440	.38	.33	.08	.32	.10	1.21	.07	1.14	.16	1.30	1.27
1929	2,125,333	.31	.14	.26	.37	.15	1.23	.09	1.14	.18	1.32	1.36
Total, 3 years	5,539,360	.36	.24	.16	.35	.12	1.23	.09	1.14	.16	1.30	1.34
Illinois:												
1927	422,560	.26	.13	.18	.71	.20	1.48	.05	1.43	.21	1.64	1.68
1928	417,878	.25	.13	.10	.68	.11	1.27	.05	1.22	.21	1.43	1.52
1929	397,354	.16	.13	.10	.72	.15	1.26	.04	1.22	.21	1.43	1.66
Total, 3 years	1,237,792	.22	.13	.13	.70	.16	1.34	.05	1.29	.21	1.50	1.62
Indiana:												
1927	16,864	.20	.89	.12	.79	.07	2.07	----------	2.07	.11	2.18	1.70
1928	15,805	.21	.52	.25	.70	.02	1.70	.02	1.68	.13	1.81	1.37
1929	10,393	.20	.67	----------	.60	.02	1.49	.04	1.45	.15	1.60	1.58
Total, 3 years	43,062	.20	.70	.14	71	.04	1.79	.01	1.78	.12	1.90	1.55

TABLE 25.—*Petroleum: Unit cost of production and sales value by States, 1927–1929*—Continued

GROUP II—Continued

	Production company interest	Expenses						Less gas sales and miscellaneous revenue	Net cost	Interest on investment	Net cost, including interest	Unit sales value
		Depletion	Amortization of tangible development	Intangible development	Operating cost	General and administrative	Total					
	Barrels											
Ohio:												
1927	262,100	$0.19	$0.48	$0.11	$0.48	$0.17	$1.43	$0.01	$1.42	$0.39	$1.81	$1.84
1928	222,450	.21	.51	.15	.59	.17	1.63	.06	1.57	.44	2.01	1.76
1929	183,983	.24	.56	.14	.73	.20	1.87	.11	1.76	.49	2.25	2.21
Total, 3 years	668,533	.21	.51	.13	.59	.18	1.62	.06	1.56	.44	2.00	1.92
Kentucky:												
1927	1,751,395	.70	.15	.09	.37	.32	1.63	.06	1.57	.30	1.87	1.66
1928	1,294,772	.77	.13	.13	.32	.28	1.63	.08	1.55	.35	1.90	1.64
1929	1,451,980	.42	.17	.24	.43	.31	1.57	.08	1.49	.33	1.82	1.82
Total, 3 years	4,498,147	.63	.15	.15	.38	.30	1.61	.07	1.54	.32	1.86	1.70
West Virginia:												
1927	89,120	.44	.55	.48	1.38	.29	3.14	.59	2.55	1.17	3.72	2.87
1928	83,482	.57	.65	.27	1.66	.59	3.74	.67	3.07	1.29	4.36	3.06
1929	103,017	.66	.53	.84	1.47	.63	4.13	.46	3.67	1.10	4.77	3.60
Total, 3 years	275,619	.56	.57	.56	1.50	.51	3.70	.57	3.13	1.18	4.31	3.20
Pennsylvania:												
1927	509,900	.36	.27	.43	1.15	.34	2.55	.22	2.33	.60	2.93	3.08
1928	532,587	.26	.27	.42	1.09	.29	2.33	.15	2.18	.64	2.82	3.33
1929	623,933	.31	.25	1.20	.93	.29	2.98	.14	2.84	.76	3.60	3.87
Total, 3 years	1,666,420	.31	.26	.71	1.05	.31	2.64	.17	2.47	.68	3.15	3.45
New York:												
1927	113,645	.51	.32	1.23	.74	.07	2.87	.02	2.85	.76	3.61	3.04
1928	332,609	.45	.40	.73	.75	.11	2.44	.02	2.42	.66	3.08	3.39
1929	432,176	.55	.49	.87	.77	.11	2.79	.02	2.77	.84	3.61	3.91
Total, 3 years	878,430	.51	.43	.87	.76	.10	2.67	.02	2.65	.76	3.41	3.60

Total, Group D:												
1927	3,165,584	.53	.22	.21	.59	.28	1.83	.09	1.74	.38	2.12	1.99
1928	2,899,583	.51	.23	.25	.63	.24	1.86	.10	1.76	.46	2.22	2.18
1929	3,202,836	.38	.26	.51	.66	.26	2.07	.09	1.98	.50	2.48	2.56
Total, 3 years	9,268,003	.47	.23	.33	.63	.26	1.92	.09	1.83	.44	2.27	2.25
Total, all States:												
1927	21,492,448	.24	.20	.14	.40	.16	1.14	.14	1.00	.16	1.16	1.21
1928	20,967,832	.24	.19	.16	.39	.16	1.14	.11	1.03	.18	1.21	1.21
1929	20,096,408	.25	.19	.28	.43	.19	1.34	.14	1.20	.21	1.41	1.40
Weighted average, 3 years	62,556,688	.23	.19	.18	.39	.16	1.15	.12	1.03	.17	1.26	1.27

PART IV

GENERAL STATISTICS OF PETROLEUM

In addition to the cost investigation conducted by the Tariff Commission, it has assembled for the convenience of the Congress a number of statistical tables relating to the production, refining, transportation, exports, imports, and prices of petroleum. These tables are derived from numerous sources, as indicated in the accompanying footnote.[1]

Attention may briefly be called to a few points of a general character brought out by these tables.

1. Growth of the Petroleum Industry

The most striking fact in regard to the crude petroleum situation during the past 20 years has been the immense increase in production and consumption throughout the world, and especially in the United States. The output of crude petroleum in the United States has increased from less than 200,000,000 barrels in 1909 to more than 1,000,000,000 barrels in 1929, without taking into account the production of more than 50,000,000 barrels of natural gasoline derived from natural gas in the latter year, a product of which there was no output 20 years before. Meantime the production of other countries has increased with nearly the same rapidity. The United States, however, has maintained its dominant position in production as well as in consumption. Possessing about 16 per cent of the world's estimated reserves of crude petroleum, it now produces about 68 per cent of the annual output of crude oil. The increase in production in the United States and in other countries has been largely due to the discovery of new fields and new pools in old fields. The crude-oil-producing area in the United States has gradually extended from east to west. In recent years about 75 per cent of the domestic output has come from three States, California, Oklahoma, and Texas.

The search for new sources of oil has been stimulated by the great demand for gasoline resulting from the development of the automobile industry. Conversely, the large supplies of petroleum produced, and the consequent moderate or low prices prevailing, have tended to stimulate the use of motor vehicles. The production of gasoline in

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[1] Sources of material in tables in Part IV:
(*a*) Commerce Yearbooks, 1928 and 1930. Petroleum and Refined Products. Natural Gas and Natural-Gas Gasoline.
(*b*) Statistical Abstract of the United States, 1929 and 1930.
(*c*) Petroleum in 1927 and Petroleum in 1928. Bureau of Mines, Department of Commerce. Petroleum. Petroleum Products, and Natural Gasoline, 1929 (Final Summary). Annual Petroleum Statement No, P. 69. Mimeographed.
(*d*) Census of Manufactures, 1927, and preliminary advance sheets for 1929.
(*e*) Monthly Petroleum Statements for the year 1930. Bureau of Mines, Department of Commerce. Mimeographed.
(*f*) Petroleum Refinery Statistics, 1928. Bureau of Mines Bulletin 318.
(*g*) Foreign Commerce and Navigation of the United States. Various years.

the United States increased from less than 13,000,000 barrels in 1909 to nearly 435,000,000 barrels in 1929. The increase in the use of automobiles has also caused a great growth in the demand for lubricants. Although the proportion of the crude oil turned into gasoline has constantly risen, the production of gasoline entails the incidental production of a great quantity of fuel oil, the output of which at present is substantially the same as that of gasoline itself. The availability of these large supplies of fuel oil has given rise to new demands for that product. By reason of its great convenience, it is being used in constantly increasing quantities as fuel for locomotives, steamships, factories, and households.

2. The Petroleum Refining Industry

The petroleum refining industry in the United States has kept pace with the crude-production industry. Relatively little crude oil is exported, the great bulk of the domestic production as well as the considerable quantity of imported crude being refined in the United States itself. The value of products of the refining industry in the United States was about eleven times greater in 1929 than in 1909, and notwithstanding the great increase in the efficiency of operation, the number of wage earners in the industry multiplied about five and one-half times.

As shown in Part III of this report, Venezuelan oil is largely handled by a "topping" process, by which only the lightest fraction of the crude is separated, leaving the remaining large residue for use as fuel. The refining of the domestic product is ordinarily carried on by complete distillation, breaking up the crude oil into several fractions of different gravities. The "first run" products are, in the order in which they come from the stills, and in the order of their gravity, (1) gasoline, naphtha, and benzene; (2) kerosene; (3) gas and fuel oil; and (4) lubricating oil. In some cases the lubricating oil is not separated. Much of the gas and fuel oil coming from the "first run" of the crude is subjected to the further process of "cracking"—distilling under superatmospheric pressures and at high temperatures—by means of which the yield of gasoline per barrel of crude is substantially increased. There are 25 or 30 different processes of "cracking," in use at different refineries. Recently a new process of hydrogenating petroleum has been devised which gives still much larger yields, not only of gasoline but also of other refined products. This hydrogenation process is not yet in general commercial use.

In addition to the distillation and cracking processes, the products of petroleum are subjected to various after treatments of purification and improvement of quality.

The growth in the demand for gasoline has been accompanied by a marked change in refining methods, with a view to increasing the proportion of gasoline extracted. In the early days of the industry, kerosene was the principal product sought. Even as late as 1909 the amount of kerosene produced was about three times as great as the amount of gasoline. In 1929, on the other hand, gasoline production was more than seven times that of kerosene.

3. Growth of Export Trade in Refined Products

Throughout the history of the petroleum industry the United States has been the world's largest exporter of refined petroleum products. In the earlier days of the industry the ratio of exports to production was even larger than at present. The great expansion of oil production has, however, been accompanied by a great growth in the export trade. The total value of the exports of refined oils (liquid products only) increased from less than $100,000,000 in 1911 to over $493,000,000 in 1929. Including nonliquid products the value of exports in the latter year was $523,000,000, besides the exportation of crude petroleum to a value of $38,000,000 and besides fuel oil loaded on United States or foreign vessels engaged in foreign trade to a value of nearly $55,000,000.

The products of the American refining industry are shipped to all countries of the world. Europe takes much more gasoline and lubricating oil than any other continent, but has only a small lead over Asia and Australasia in purchases of American illuminating oil, while South America takes more of our gas oil and fuel oil than any other continent.

4. Increase in Imports of Crude Petroleum from Venezuela

Prior to the World War the United States imported very little crude petroleum. During the war production in Mexico developed rapidly, and imports into the United States, which at that time were chiefly from Mexico, rose to a maximum of 127,000,000 barrels in 1922. During more recent years crude production in Mexico has declined and the imports from that country have fallen greatly. Meantime, however, production has begun in Venezuela and grown rapidly. In 1928 Venezuela displaced Mexico as the chief source of imports of crude. The total importation of Venezuelan crude rose from less than 1,000,000 barrels in 1923 to nearly 5,000,000 barrels in 1925, over 22,000,000 barrels in 1927, and nearly 51,000,000 barrels in 1929. The total imports from all countries in 1929 were 79,000,000 barrels, as compared with a maximum of 127,000,000 barrels in 1922 and the postwar minimum of 58,000,000 barrels in 1927. During postwar years there has also been a considerable importation of refined petroleum products, especially of gasoline and of "topped" oils—that is, the remainder of the crude after the extraction of gasoline and similar light products. The imports declined in 1927 and 1928, by reason of a falling off in purchases from Mexico, but increased greatly in 1929 by reason of purchases of the products of Venezuelan crude, mostly coming from refineries in the Netherland West Indies, which receive crude oil from the near-by Maracaibo Basin.

5. Prices of Mid-Continent Crude

The price of average grade (about 33°) Mid-Continent crude has fluctuated between $1 and $2 per barrel most of the time since 1920. The price fell from $3.50 per barrel in 1920, to $1 per barrel in the summer of 1921, recovering to $2 per barrel in the last two months of that year. Since 1920 it has been above $2 per barrel only during the summer months of 1926, when it rose to a few cents more than

that price. Higher gravities command higher prices, the differential varying from 2 cents to 5 cents per degree, the typical differential being about 3 cents.

Pennsylvania crude sells on a different price level than Mid-Continent crude. It has fluctuated between $2.50 and $4 since 1929, with the typical price at approximately $3 per barrel.

TABLE 26.—*Production of crude oil in the world, the United States, and Venezuela and of natural gasoline [1] in the United States*

[All quantities in thousands of barrels of 42 gallons]

Period (annual average) or year	Production of crude oil				United States percentage of world total	United States production of—	
	World total	United States	Venezuela	Other countries		Natural gasoline	Crude oil and natural gasoline
1901–1905	195,433	102,083	----------	93,350	52	(2)	----------
1906–1910	277,796	172,769	----------	105,027	62	(2)	----------
1911–1915	384,345	247,739	----------	136,606	64	722	248,461
1916–1920	541,733	362,661	----------	179,072	67	6,382	369,043
1921–1925	944,777	647,961	7,313	289,503	69	18,254	666,215
1926–1929	1,292,148	895,200	85,816	311,132	69	41,976	937,176
1920	688,884	442,929	457	245,498	64	9,161	452,090
1921	766,002	472,183	1,433	292,386	62	10,713	482,896
1922	858,898	557,531	2,201	299,166	65	12,044	569,575
1923	1,015,736	732,407	4,201	279,128	72	19,434	751,841
1924	1,014,318	713,940	9,042	291,336	70	22,235	736,175
1925	1,068,933	763,743	19,687	285,503	71	26,845	790,588
1926	1,096,823	770,874	36,911	289,038	70	32,455	803,329
1927	1,262,582	901,129	63,134	298,319	71	39,075	940,204
1928	1,324,734	901,474	105,749	317,511	68	43,191	944,665
1929	1,484,451	1,007,323	137,472	339,656	68	53,183	1,060,506

[1] Natural gasoline is that derived from treatment of natural gas. [2] Not available.

TABLE 27.—*Production of crude petroleum by countries*

[All quantities in thousands of barrels of 42 gallons]

Country	Production				Percentage of world total			
	1926	1927	1928	1929	1926	1927	1928	1929
World total	1,096,823	1,262,582	1,324,734	1,484,451	100.0	100.0	100.0	100.0
United States	770,874	901,129	901,474	1,007,323	70.3	71.4	68.0	67.9
Venezuela	36,911	63,134	105,749	137,472	3.4	5.0	8.0	9.3
Mexico	90,421	64,121	50,151	44,688	8.2	5.1	3.8	3.0
Peru	10,762	10,127	12,006	13,422	1.0	.8	.9	.9
Colombia	6,444	15,014	19,897	20,385	.6	1.2	1.5	1.4
Argentina	7,851	8,630	9,070	9,391	.7	.7	.7	.6
Trinidad	4,971	5,380	7,684	8,716	.5	.4	.6	.6
Russia	64,311	77,018	[1] 84,704	[1] 99,507	5.9	6.1	6.4	6.7
Rumania	23,314	26,368	30,773	34,089	2.1	2.1	2.3	2.3
Poland	5,844	5,342	5,493	4,988	.5	.4	.4	.3
Persia	35,842	39,688	43,461	42,145	3.3	3.2	3.3	2.8
Netherland East Indies	21,243	27,459	32,118	38,072	1.9	2.2	2.4	2.6
British India	8,011	8,032	8,741	8,366	.7	.6	.7	.6
Sarawak	4,942	4,943	5,223	5,279	.4	.4	.4	.4
All other countries	5,082	6,197	8,190	10,008	.5	.4	.6	.6
United States production of natural gasoline [2]	32,455	39,075	43,191	53,183	-------	-------	-------	------

[1] Year ended Sept. 30. [2] Not included above.

TABLE 28.—*United States production of crude petroleum by fields*

[In thousands of barrels of 42 gallons]

Period (annual average) or year	Total	Appalachian	Lima-Indiana [1]	Illinois [1]	Mid-continent	Gulf coast	Rocky Mountain	California
1901–1910	137,426	28,943	17,253	12,659	25,088	17,436	402	35,641
1911–1915	247,739	24,594	5,052	24,955	87,656	12,357	2,605	90,512
1916–1920	362,661	27,161	3,468	13,918	184,616	24,273	11,830	97,384
1921–1925	647,961	28,504	2,297	9,585	343,545	33,688	35,258	195,074
1926–1929	895,200	30,977	1,770	7,700	526,759	50,260	31,266	245,054
1926	770,874	28,572	2,030	8,418	423,867	45,275	[2] 37,945	224,673
1927	901,129	30,454	1,835	7,720	546,987	52,069	[2] 30,429	231,196
1928	901,474	31,059	1,670	7,425	553,125	46,591	[2] 29,199	231,811
1929	1,007,323	33,824	1,547	7,237	583,058	57,106	[2] 27,489	292,534

[1] Southwestern Indiana reported with Illinois beginning in 1921; with Lima-Indiana region previously.
[2] Includes Alaska.

TABLE 29.—*United States production of crude petroleum, by States*

[In thousands of barrels of 42 gallons]

State	1901–1910 average	1911–1920 average	1921–1925 average	1926	1927	1928	1929
Eastern fields:							
Pennsylvania	10,538	7,832	7,607	8,961	9,526	9,956	11,820
West Virginia	11,605	9,399	6,576	5,946	6,023	5,661	5,574
Kentucky [1]	696	2,910	8,044	6,274	6,719	7,359	7,775
Ohio	15,677	8,084	7,045	7,272	7,593	7,015	6,743
Indiana	6,527	1,016	1,011	808	852	1,052	981
Illinois	12,659	19,436	8,815	7,760	6,994	6,462	6,319
New York	1,153	892	1,274	1,956	2,242	2,603	3,377
Michigan				94	439	594	4,528
Mid-Continent-Gulf fields:							
Kansas [2]	4,603	17,396	32,733	41,498	41,069	38,596	42,813
Oklahoma [2]	19,076	85,366	155,088	179,195	277,775	249,857	255,004
Arkansas			36,644	58,332	40,005	32,096	24,917
Louisiana	4,310	16,057	25,759	23,201	22,818	21,847	20,554
Texas	14,534	35,632	127,009	166,916	217,389	257,320	296,876
New Mexico	[3]	[3]	[4] 554	1,666	1,226	943	1,830
Rocky Mountain field:							
Colorado	381	175	392	2,768	2,831	2,774	2,358
Montana		64	2,729	7,727	5,058	4,015	3,980
Wyoming	21	6,978	31,901	25,776	21,307	21,461	19,314
California	35,641	93,948	195,074	224,673	231,196	231,811	292,534

[1] Kentucky includes Tennessee report until 1907.
[2] Kansas includes Oklahoma report in 1905 and 1906.
[3] Not separately shown until 1924.
[4] Average of 1924 and 1925.

EXPLANATION OF TABLE 29A SHOWING THE RELATION OF DEMAND TO SUPPLY IN THE UNITED STATES

Table 29a, prepared by the Bureau of Mines for the Federal Oil Conservation Board, shows domestic supply and demand for petroleum and petroleum products for the years 1918–1929. In its make-up, petroleum products, such as gasoline, are included in imports, increase or decrease of stocks on hand, and exports, but not in domestic production, thus avoiding duplication.

Among the significant points brought out by this table are:

1. Excess of domestic production over domestic demand each year since 1920. This has resulted in an accumulation of stocks of crude petroleum of 682,000,000 barrels, or eight months supply, at the end of 1929.

2. Relatively stable volume of imports of crude oil since 1922. The largest quantity imported in any year since 1922 was in 1923,

when over 79,494,534 barrels came from Mexico out of a total of 82,015,024 barrels imported. The smallest quantity imported in any year since 1922 was in 1927, when imports from Mexico had declined and imports from Venezuela had not reached their present volume. A marked increase of gasoline imports, coming mainly from the Netherland West Indies, was recorded in 1929.

3. A larger rate of increase in production of natural gasoline than in crude oil.

4. A larger rate of increase of exports of crude oil than of refined products. This would indicate increase of refining capacities in foreign countries.

5. A larger volume of imports than of exports of crude oil, which is more than offset, however, by exports of refined products.

TABLE 29a.—*Balance sheet for petroleum production and consumption, 1918–1929*[1]

(Thousands of barrels of 42 gallons)

Year	New supply											
	Domestic production						Imports				Total new supply	
	Crude petroleum		Natural gasoline	Benzol	Total		Crude	Refined	Total	Daily average	Quantity	Daily average
	Total	Daily average			Quantity	Daily average						
	(1)	(2)	(3)	(4)	(5) (1+3+4)	(6)	(7)	(8)	(9) (7+8)	(10)	(11) (5+9)	(12)
1918	355,928	975	6,727	1,273	363,928	997	37,736	1,207	38,943	107	402,871	1,104
1919	378,367	1,037	8,370	1,497	388,234	1,064	52,822	1,340	54,162	148	442,396	1,212
1920	442,929	1,210	9,161	1,771	453,861	1,240	106,175	2,619	108,794	297	562,655	1,537
1921	472,183	1,294	10,713	1,348	484,244	1,327	125,364	3,412	128,776	353	613,020	1,680
1922	557,531	1,527	12,044	1,688	571,263	1,565	127,308	8,639	135,947	372	707,210	1,938
1923	732,407	2,007	19,434	2,327	754,168	2,066	82,015	17,593	99,608	273	853,776	2,339
1924	713,940	1,951	22,235	2,203	738,378	2,017	77,775	16,806	94,581	258	832,959	2,276
1925	763,743	2,092	26,307	1,857	791,907	2,170	61,824	16,376	78,200	214	870,107	2,384
1926	770,874	2,112	32,305	2,112	805,291	2,206	60,382	20,938	81,320	223	886,611	2,429
1927	901,129	2,469	38,657	2,562	942,348	2,582	58,383	13,353	71,736	197	1,014,084	2,778
1928	901,474	2,463	42,326	2,809	946,609	2,586	79,767	11,790	91,557	250	1,038,166	2,837
1929[2]	1,005,598	2,755	52,271	3,055	1,060,924	2,907	78,915	29,794	108,709	298	1,169,633	3,204

Year	Increase (+) or decrease (−) in stocks of all oils			Demand									Excess domestic production over domestic demand
				Total demand		Exports			Domestic demand				
	Crude	Refined	Total	Quantity	Daily average	Crude	Refined	Total	Bunker oil	Other	Total	Daily average	
	(13)	(14)	(15) (13+14)	(16) (11±15)	(17)	(18)	(19)	(20) (18+19)	(21)	(22) (23−21)	(23) (16−20)	(24)	(25) (5−23)
1918	−26,754	+1,921	−24,833	427,704	1,172	5,884	61,176	67,060	6,603	354,041	360,644	988	3,284
1919	+5,020	+1,897	+6,917	435,379	1,193	6,348	56,505	62,853	14,031	358,695	372,726	1,021	15,508
1920	+17,933	+9,369	+27,302	535,353	1,463	9,295	68,696	77,991	26,335	431,027	457,362	1,250	[2] 3,501
1921	+67,876	+16,330	+84,206	528,814	1,449	9,627	60,763	70,390	27,076	431,348	458,424	1,256	25,820
1922	+89,487	+12,643	+102,130	605,080	1,658	10,805	62,144	72,949	31,692	500,439	532,131	1,458	39,132
1923	+80,907	+18,778	+99,685	754,091	2,066	17,534	82,857	100,391	37,582	616,118	653,700	1,791	100,468
1924	+28,831	+518	+29,349	803,610	2,196	18,239	98,728	116,967	43,328	643,315	686,643	1,876	51,735
1925	+12,037	+18,083	+30,120	839,987	2,301	13,337	100,216	113,553	42,827	683,607	726,434	1,990	65,473
1926	−27,562	+2,798	−24,764	911,375	2,497	15,407	116,087	131,494	26,662	753,219	779,881	2,137	25,410
1927	+70,320	−217	+70,103	943,981	2,586	15,844	125,191	141,035	50,051	752,895	802,946	2,200	139,402
1928	+17,282	+5,500	+22,782	1,015,384	2,774	18,966	135,483	154,449	51,226	809,709	860,935	2,352	85,674
1929 [3]	+49,197	+18,409	+67,606	1,102,027	3,019	26,374	135,883	162,257	52,308	887,462	939,770	2,575	121,154

[1] Prepared by Bureau of Mines for Federal Oil Conservation Board.

[2] Deficiency.

[3] Preliminary.

TABLE 30.—*Summary of value data regarding petroleum and its products*

[All values in thousands of dollars]

	Annual average			Year			
	1901–10	1911–20	1921–25	1926	1927	1928	1929
Crude oil production at wells	$101,548	$460,746	$999,186	$1,447,760	$1,172,830	$1,054,880	$1,280,417
Natural gasoline production (value at point of consumption)	----------	25,328	82,205	136,412	118,688	138,944	158,231
Natural gas production (value at point of consumption)	[1] 57,940	121,541	229,002	300,168	317,930	364,000	413,000
Imports of crude oil	([2])	17,050	68,000	79,308	78,609	90,473	79,943
Exports of crude oil [3]	6,350	10,100	22,500	28,500	25,900	26,800	37,800
Bunker oil loaded on vessels in foreign trade	([2])	[4] 24,200	55,900	71,000	73,000	59,400	54,700
Total materials consumed by refineries	----------	----------	----------	----------	1,752,997	----------	2,055,734
Value added to material by refineries [5]	----------	----------	----------	----------	389,652	----------	555,947
Total value of products of refineries (includes some duplication)	----------	----------	----------	----------	2,142,649	----------	[6] 2,611,681
Imports of refined liquid products	([2])	3,050	22,200	44,596	33,638	40,943	61,045
Imports of all refined products	----------	----------	22,797	45,248	34,825	42,369	63,636
Exports of refined liquid products	79,450	224,750	363,600	497,212	429,663	465,214	493,382
Exports of all refined products	----------	----------	382,565	526,038	459,959	499,066	523,391

[1] Average 1906–1910.
[2] Not available.
[3] Not including reexports of imported commodities nor shipments to noncontiguous territories of the United States.
[4] Average 1916–1920.
[5] Value of products less cost of materials, supplies, fuel, and power.
[6] Preliminary.

TABLE 31.—*Summary of average values per barrel*

[Per barrel of 42 gallons]

	Annual average			Year			
	1901–1910	1911–1920	1921–1925	1926	1927	1928	1929
Crude oil production at wells	$0.74	$1.51	$1.54	$1.88	$1.30	$1.17	$1.27
Natural gasoline production (value at point of consumption)	----------	7.13	4.53	4.20	3.04	3.22	2.98
Imports of crude oil	([1])	.55	.72	1.31	1.35	1.13	1.01
Exports of crude oil [2]	1.89	2.12	1.69	1.85	1.64	1.41	1.43
Bunker oil loaded on vessels in foreign trade	([1])	[3] 2.07	1.53	1.52	1.46	1.16	1.05
Imports of refined liquid products	([1])	3.61	1.77	2.13	2.53	3.50	2.06
Exports of refined liquid products	3.01	4.35	4.76	4.59	3.72	3.69	3.90

[1] Not available.
[2] Not including reexports of imported commodities nor shipments to noncontiguous territories of these United States.
[3] Average 1916–1920.

TABLE 32.—*Summary of import statistics*

Year	Crude oil			Liquid refined products			Non-liquid products,[2] value
	Total	Venezuelan product[1]	All other	Total	From Venezuela crude[1]	All other	
	Quantity in thousands of barrels of 42 gallons						
1910[3]	[4] 326	None.	326	----------	----------	----------	----------
1915[3]	15,564	50	15,514	202	None.	202	----------
1920	106,175	None.	106,175	2,619	(5)	2,619	----------
1921	125,364	69	125,295	3,410	24	3,386	----------
1922	127,308	986	126,322	8,639	33	8,606	----------
1923	82,015	964	81,051	17,593	59	17,534	----------
1924	77,775	1,366	76,409	16,759	243	16,516	----------
1925	61,824	4,947	56,877	16,325	1,008	15,317	----------
1926	60,382	12,689	47,693	20,902	4,036	16,866	----------
1927	58,383	22,014	36,369	13,281	4,479	8,802	----------
1928	79,767	47,474	32,293	11,700	6,224	5,476	----------
1929	78,933	50,867	28,066	29,632	26,916	2,716	----------
	Value in thousands of dollars						
1910[3]	[4] 609	None.	609	----------	----------	----------	352
1915[3]	8,918	39	8,879	873	None.	873	296
1920	55,799	None.	55,799	10,104	3	10,101	821
1921	66,547	52	66,495	10,842	323	10,519	325
1922	70,383	987	69,396	17,802	491	17,311	299
1923	53,882	996	52,886	24,272	771	23,501	559
1924	73,842	1,644	72,198	26,870	1,074	25,796	645
1925	75,407	6,581	68,826	31,283	3,842	27,441	1,003
1926	79,308	17,073	62,235	44,597	16,013	28,584	652
1927	78,609	29,754	48,855	33,638	17,352	16,286	1,187
1928	90,473	49,101	41,372	40,943	31,618	9,325	1,426
1929	79,943	44,987	34,956	61,045	56,578	4,467	2,591
	Average value per barrel						
1926	$1.31	$1.35	$1.30	$2.13	$3.97	$1.69	----------
1927	1.35	1.35	1.34	2.53	3.87	1.85	----------
1928	1.13	1.03	1.28	3.50	5.08	1.70	----------
1929	1.01	.88	1.25	2.06	2.10	1.64	----------

[1] Combined imports from Venezuela, Netherland West Indies, and Trinidad and Tobago, nearly all originating in Venezuela.
[2] Paraffin and paraffin wax.
[3] Fiscal years.
[4] Listed as "Mineral oil." No segregation of crude and refined.
[5] Less than 500 barrels.

TABLE 33.—*Imports from the several countries*

	Quantity (thousands of barrels)			Value (thousands of dollars)		
	1927	1928	1929	1927	1928	1929
Crude oil, total	58,383	79,767	78,933	$78,609	$90,473	$79,943
Venezuela	11,424	21,987	34,431	14,946	21,275	32,609
Netherland West Indies	10,136	24,989	16,222	14,229	27,370	12,165
Trinidad and Tobago	454	497	213	579	457	212
Mexico	26,019	17,584	12,663	30,442	19,400	11,388
Colombia	7,962	11,838	12,620	13,559	17,210	18,490
Ecuador		765	1,279		1,191	1,747
Peru	1,886	1,224	1,454	4,157	2,707	3,233
All other countries	502	883	51	697	863	99
Total refined liquid products [1]	13,189	11,681	29,626	33,300	40,909	61,001
Topped oils including fuel oil, total	8,124	7,268	20,545	10,176	8,485	16,513
Venezuela		90	(2)		100	
Netherland West Indies	1,554	2,847	18,317	2,818	3,686	14,140
Trinidad and Tobago		5	8		5	7
Mexico	6,234	3,812	1,654	6,878	3,952	1,591
All other countries	336	514	566	480	742	775
Gasoline, naphtha, and other light products, total	5,002	4,198	8,834	22,773	31,516	43,335
Venezuela	7	149	64	56	1,114	512
Netherland West Indies	2,502	2,462	7,494	12,316	22,766	37,370
Trinidad and Tobago	399	661	1,012	2,072	3,845	4,353
Mexico	1,823	760	229	6,989	2,915	869
All other countries	271	166	35	1,340	876	231
Kerosene, total	55	202	208	248	716	562
Mexico	42	194	192	160	657	466
All other countries	13	8	16	88	59	96
Lubricating oils, total	8	13	39	103	192	591
Paraffin and paraffin wax, total	[3] 20,462	[3] 24,741	[3] 40,860	1,187	1,426	2,591
British India	[3] 3,796	[3] 7,972	[3] 16,655	241	489	1,061
Netherland East Indies	[3] 14,725	[3] 12,532	[3] 21,595	821	677	1,379
All other countries	[3] 1,941	[3] 4,237	[3] 2,610	125	260	151

[1] Total of items shown. Does not include "tops and other unfinished distillates."
[2] Less than 500 barrels.
[3] Thousands of pounds.

TABLE 34.—*Exports of petroleum and its products, not including shipments to noncontiguous territories and possessions of the United States, other than the Philippine Islands*

	Unit	Quantity			Value (thousands of dollars)		
		1927	1928	1929	1927	1928	1929
Crude Petroleum	1,000 barrels	15,843	18,966	26,401	25,945	26,786	37,800
Refined liquid products, total.	do	115,399	126,159	126,377	429,663	465,214	493,382
Gasoline, etc	do	43,334	51,752	60,007	209,839	232,298	266,904
Illuminating oil	do	19,352	21,847	19,820	79,303	93,466	83,798
Gas oil and fuel oil	do	42,963	41,573	35,715	49,802	45,812	37,200
Lubricating oil	do	9,619	10,931	10,775	89,333	93,130	104,927
Refined nonliquid products and residuum, total.					30,295	33,851	30,009
Lubricating greases	1,000 pounds	100,483	108,112	116,692	5,299	5,588	6,111
Paraffin wax	do	340,423	392,652	319,276	15,034	16,864	14,074
Petroleum asphalt	1,000 long tons	344	440	428	8,325	9,789	8,543
Petroleum coke	do	93	129	116	1,053	1,384	1,134
Residuum	1,000 barrels	217	63	35	584	226	147
Fuel oil loaded on vessels in foreign trade.[1]	do	50,051	51,226	52,278	73,000	59,400	54,700

[1] Not included above; not treated as exports.

TABLE 35.—*Exports of crude oil and principal refined products to the principal countries*

[Quantities in thousands of barrels of 42 gallons]

Country	Crude oil		Gasoline		Illuminating oil		Gas oil and fuel oil		Lubricating oil	
	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929
Grand total	18,966	26,401	51,752	60,007	21,847	19,820	41,573	35,715	10,931	10,775
Europe:										
United Kingdom	35	92	15,636	17,518	2,945	2,794	4,403	3,593	1,963	1,815
France	(1)	4	7,726	8,738	1,670	1,255	578	249	1,555	1,642
Germany	181	33	1,318	1,768	839	737	1,793	1,351	1,434	1,303
Italy	-------	-------	1,465	1,319	160	171	403	311	543	377
Belgium	-------	(1)	1,274	1,350	296	222	434	490	1,012	835
Netherlands	53	(1)	1,885	1,850	1,599	1,383	884	888	288	244
Spain	186	148	967	1,370	102	88	153	210	91	101
Scandinavian countries	[2] 59	[2] 47	2,819	3,079	1,250	1,326	851	975	324	354
Asia and Australasia:										
British India	-------	-------	15	-------	475	523	7	(1)	505	437
Japan	2,066	2,476	738	913	2,372	1,304	5,114	5,172	289	322
China, Hong Kong, and Kwantung	-------	-------	245	503	4,769	4,026	1,131	934	309	317
Australia	-------	(1)	2,572	3,404	993	908	24	20	390	482
New Zealand	6	61	1,220	1,251	177	154	948	775	79	98
Philippine Islands	-------	-------	377	463	360	462	592	887	75	68
America:										
Argentina	(1)	101	1,783	2,291	190	201	2,114	506	237	296
Brazil	-------	28	1,254	1,435	650	602	887	503	309	279
Chile	-------	50	234	265	9	29	6,329	6,064	60	71
Uruguay	-------	-------	406	461	181	196	590	106	37	35
Mexico	175	211	295	558	36	37	1,219	1,741	90	76
Panama	128	------	180	324	19	254	5,189	3,332	16	12
Cuba	528	701	809	614	10	7	2,026	2,569	81	95
Canada	15,431	22,412	4,410	5,225	150	120	2,387	2,126	503	568
Africa:										
British South Africa	-------	-------	932	850	326	428	(1)	1	88	126
Algeria and Tunisia	-------	-------	565	461	207	247	-------	-------	21	21

[1] Less than 500 barrels. [2] Sweden only.

TABLE 36.—*Census statistics of petroleum refining industry, 1899–1929*

Year	Establishments	Wage earners (average for the year)	Horsepower	Wages (1,000 dollars)	Cost of materials, fuel, and power (1,000 dollars)	Value of products (1,000 dollars)	Value added by manufactures (1,000 dollars)	Crude oil consumed (1,000 barrels)
1899	67	12,199	36,127	6,717	102,859	123,929	21,070	52,011
1909	147	13,929	89,983	9,830	199,273	236,998	37,724	120,775
1914	176	25,366	128,190	19,397	325,265	396,361	71,097	191,263
1919	320	58,889	238,906	89,750	1,247,908	1,632,533	384,624	365,272
1921	366	63,189	(1)	102,294	1,382,170	1,727,446	345,270	(2)
1923	382	66,717	349,154	103,834	1,425,053	1,793,700	368,647	601,748
1925	359	65,324	393,753	104,645	1,889,678	2,376,657	486,979	739,489
1927	354	71,234	552,651	113,717	1,752,997	2,142,649	389,651	831,332
1929	375	76,840	(3)	125,949	2,055,734	2,611,681	555,947	982,423

[1] Not called for in schedule for 1921.
[2] No exact data: Estimated at 485,500,000 barrels of crude oil and partially run distillates.
[3] Not available.

TABLE 37.—*Products of the petroleum refinery industry*

[All quantities, except as stated in footnotes, in thousands of gallons, values in thousands of dollars]

	Quantity			Value		
	1925	1927	1929	1925	1927	1929
All products of industry				$2,364,069	$2,133,923	$2,597,370
Light products, total	11,278,891	13,391,340	18,199,059	1,265,284	1,102,154	1,592,981
Gasoline [1]	10,726,262	[2]13,180,880	17,982,832	1,218,236	[2]1,090,955	1,579,083
Naphtha	294,947			29,938		
Benzine	41,714	50,556	61,072	4,993	4,625	5,276
Tops	215,948	159,904	155,155	12,117	6,574	8,622
Illuminating oils	2,365,302	2,217,591	2,332,437	161,880	147,925	164,009
Fuel oils, total	14,604,038	15,415,860	16,134,961	488,958	456,959	379,683
Distillates	1,204,937	976,670	1,005,280	51,743	44,287	38,391
Gas oils	1,812,645	2,576,591	2,845,053	79,602	99,328	94,672
Residual fuel oils	11,586,456	11,862,599	12,284,628	357,613	313,344	246,620
Partially refined oils, sold for rerunning	1,497,879	1,583,727	1,423,414	65,305	62,210	48,435
Lubricating oils	1,361,072	1,381,902	1,546,000	252,105	244,629	301,922
Liquid asphaltic road oils	274,317	204,799	320,670	12,512	9,308	10,998
Residuum, or tar	125,115	118,467	96,340	5,582	5,118	2,854
Greases [3]	45,820	63,039	57,672	13,921	12,961	16,774
Paraffin wax	89,762	94,257	84,225	30,590	23,433	22,221
Asphalt [4]	2,276	2,642	3,090	30,461	37,884	34,273
All other products [5]				37,471	31,342	23,220

[1] Includes naphtha representing about 4 per cent of the value in 1927 and 1929.
[2] Revised.
[3] In addition, lubricating greases are produced to a large extent by establishments classified for census purposes in the "Lubricating oils and greases, not made in petroleum refineries" industry. The total production of greases in that industry was valued at $16,829,012 in 1929 and $9,781,858 in 1927.
[4] Quantity in tons (2,000 pounds).
[5] Includes "Acid oil," "coke petroleum," and "all other refinery products."

TABLE 38.—*Petroleum refining: Consumption of crude oil and natural gasoline, and output of major products, by region of location of refineries* [1]

[In thousands of barrels of 42 gallons (except for wax). Data differ slightly from corresponding census statistics]

Region	Crude oil run to stills		Natural gasoline run to stills or blended		Output of refineries, 1929				
	1928	1929	1928	1929	Gasoline	Kerosene	Gas oil and fuel oil	Lubricants	Wax
Total	913,295	987,708	35,233	45,463	434,241	57,154	447,894	34,359	630,07
East coast	170,506	172,434	2,204	2,473	57,851	8,091	91,011	10,874	260,15
Appalachian	33,643	33,802	732	642	16,061	3,671	7,165	5,243	96,11
Indiana, Illinois, Kentucky, etc	98,905	110,349	2,226	2,636	65,102	5,334	36,296	3,901	59,48
Oklahoma, Kansas, and Missouri	111,342	115,449	4,632	4,248	62,432	10,052	38,439	2,678	40,61
Texas	186,076	211,693	6,963	9,749	93,589	13,336	92,448	7,727	67,16
Louisiana and Arkansas	75,540	75,428	5,082	6,731	31,093	5,501	32,114	968	65,26
Rocky Mountain	26,061	25,443	1,384	1,492	16,431	1,530	6,950	580	41,27
California	211,222	243,110	12,000	17,492	91,682	9,639	143,471	2,388	-------

Bureau of Mines statistics.

TABLE 39.—*Production, imports, exports, stocks, and domestic demand of gasoline, kerosene, gas oil, fuel oil, and lubricating oils*

[Thousands of barrels of 42 gallons]

Period	Production	Imports [1]	Exports [2]	Stocks, end of period	Domestic demand [3]	Production	Imports [1]	Exports [2]	Stocks, end of period [4]	Domestic demand [3]
	Gasoline					Gas oil and fuel oil				
1921	122,704	900	13,134	13,954	107,525	230,991	-------	22,676	31,697	195,656
1922	147,672	1,479	14,156	21,043	127,906	254,910	2,947	18,479	31,065	240,010
1923	179,903	4,555	20,741	28,014	156,746	287,481	12,286	33,372	36,072	261,388
1924	213,326	3,453	28,967	30,823	185,003	320,476	12,927	37,249	39,774	292,452
1925	259,601	3,813	31,497	38,875	223,865	364,991	12,245	36,088	24,681	(5)
1926	299,734	5,540	43,313	39,023	261,813	365,195	14,432	38,351	24,898	(5)
1927	330,435	5,002	44,337	33,316	296,807	393,066	8,124	47,391	34,022	(5)
1928	376,945	4,198	52,904	33,066	328,489	427,237	7,268	44,427	34,926	(5)
1929	439,123	8,834	62,018	43,132	375,699	438,785	20,544	39,151	34,425	(5)
1930 (January to November, inclusive)	407,182	15,963	60,496	38,705	367,076	343,458	23,784	33,340	40,427	(5)
	Kerosene					Lubricants				
1921	46,313	-------	18,016	8,119	29,537	20,896	-------	6,936	5,735	12,047
1922	54,913	3	21,489	6,692	34,854	23,304	43	7,941	5,613	15,528
1923	55,927	7	20,347	7,231	35,048	26,128	29	8,372	6,138	17,260
1924	60,026	10	21,961	8,594	36,712	27,498	11	11,988	6,420	18,124
1925	59,689	19	21,212	7,121	39,969	31,055	37	9,678	7,253	20,581
1926	61,768	74	22,248	8,575	38,140	32,293	33	9,435	7,576	22,568
1927	56,113	55	19,537	7,715	37,491	31,721	8	9,776	7,860	21,669
1928	59,353	202	22,034	9,001	36,235	34,658	13	11,023	8,340	23,168
1929	55,992	208	20,023	9,039	36,603	34,359	39	10,860	8,269	23,609
1930 (January to November, inclusive)	45,633	163	15,678	7,379	31,778	31,692	24	9,519	10,536	20,130

[1] Data except for gasoline not available prior to October, 1922.
[2] Including shipments to Alaska, Hawaii, and Porto Rico.
[3] Indicated deliveries by refineries for United States consumption.
[4] Beginning 1925 data for gas oil and fuel oil represent east of California only.
[5] Not available because of absence of complete stock figures; see note 4.

TABLE 40.—*Percentage yield of major refined products*

Product	All regions									
	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
Gasoline	26.8	27.7	29.5	30.9	33.1	35.1	38.5	39.9	41.3	44.0
Kerosene	12.7	10.4	11.0	9.6	9.3	8.1	7.9	6.8	6.5	5.8
Gas oil and fuel oil	48.6	51.9	50.9	49.5	49.8	49.3	46.9	47.4	46.8	45.3
Lubricants	5.7	4.7	4.7	4.5	4.3	4.2	4.1	3.8	3.8	3.5

	Refinery districts											
	East coast			Appalachian			Indiana, Illinois, etc.			Oklahoma, Kansas, etc.		
	1921	1928	1929	1921	1928	1929	1921	1928	1929	1921	1928	1929
Gasoline	25.1	31.5	33.5	32.6	47.2	47.5	45.3	56.3	59.0	36.0	54.7	54.1
Kerosene	11.1	5.0	4.7	19.1	11.1	10.9	10.4	6.4	4.8	11.4	9.2	8.7
Gas oil and fuel oil	54.1	55.1	52.8	23.4	21.6	21.2	27.7	33.1	32.9	45.0	33.4	33.3
Lubricants	6.5	6.3	6.3	18.3	15.2	15.5	5.9	4.0	3.5	2.4	2.4	2.3

TABLE 40.—*Percentage yield of major refined products*—Continued

Product	Refinery districts											
	Texas			Louisiana and Arkansas			Rocky Mountain			California		
	1921	1928	1929	1921	1928	1929	1921	1928	1929	1921	1928	1929
Gasoline	25.3	43.5	44.2	25.0	35.3	41.2	52.2	63.3	64.6	14.3	31.6	37.7
Kerosene	12.3	7.8	6.3	11.8	7.7	7.3	10.7	7.0	6.0	4.5	4.0	4.0
Gas oil and fuel oil	55.7	42.6	43.7	48.5	44.9	42.6	44.3	27.2	27.3	70.3	64.2	59.0
Lubricants	5.2	4.5	3.7	1.2	1.0	1.3	2.0	2.4	2.3	2.2	1.1	1.0

Source: Bureau of Mines, Department of Commerce.

NOTE.—The figures, obtained by dividing output by the quantity of crude oil run to stills, do not strictly represent the proportions of the several products actually obtained from crude oil, especially because gasoline obtained by rerunning natural gasoline, a rapidly increasing quantity, is included. For the same reason the percentage in some cases adds to more than 100. Deducting natural gasoline from the total gasoline production the yields of gasoline in 1928 and 1929 were 37.4 and 39.4 per cent, respectively.

TABLE 41.—*Monthly statistics of crude petroleum and of exports and imports of refined liquid products*

[In thousands of barrels of 42 gallons]

	Production of crude oil					Stock of crude oil	Crude oil run to stills	Imports		Exports	
	Total	Eastern field [1]	Gulf and Mid-Continent [2]	Rocky mountain [3]	California [4]			Crude oil	Refined products	Crude oil	Refined products
1927											
January	71,758	3,143	45,773	2,650	20,192	405,296	69,529	4,593	1,189	1,204	9,538
February	68,122	3,120	44,562	2,450	17,990	410,837	62,961	4,181	1,507	1,165	9,368
March	75,514	3,636	49,328	2,706	19,844	415,814	68,672	4,582	1,027	1,199	8,879
April	73,132	3,324	47,582	2,725	19,501	423,856	66,493	4,063	1,201	1,171	9,247
May	76,845	3,473	51,134	2,724	19,514	431,590	69,700	4,557	1,329	1,390	11,410
June	75,303	3,479	50,073	2,563	19,188	440,438	67,567	4,019	1,448	1,411	10,990
July	78,780	3,377	53,251	2,766	19,386	448,919	71,405	4,823	1,053	1,089	9,326
August	78,788	3,565	53,372	2,504	19,347	456,501	70,957	6,261	774	1,382	11,383
September	75,909	3,417	51,062	2,299	19,131	462,931	68,532	5,122	868	1,297	9,309
October	77,534	3,406	52,308	2,303	19,517	466,839	71,761	4,633	042	1,539	11,107
November	74,493	3,319	50,308	2,285	18,581	472,896	69,988	5,339	1,159	1,280	10,138
December	74,951	3,189	50,303	2,454,	19,005	473,379	71,271	6,210	756	1,717	8,790
Total	901,129	40,448	599,056	30,429	231,196	473,379	828,835	58,383	13,353	15,844	119,485
1928											
January	72,793	3,137	48,277	2,410	18,969	481,712	69,161	6,330	1,165	1,225	11,571
February	68,565	3,166	45,147	2,186	18,066	486,199	66,648	6,036	1,055	1,243	9,465
March	74,528	3,527	49,349	2,570	19,082	490,818	72,621	6,845	1,134	1,530	10,722
April	72,393	3,229	48,533	2,339	18,292	492,419	73,084	5,661	1,680	1,303	11,460
May	75,277	3,627	49,794	2,548	19,308	492,473	77,414	6,766	1,162	1,493	12,562
June	72,676	3,403	47,643	2,435	19,195	491,938	75,958	6,553	712	1,879	11,807
July	75,584	3,514	49,862	2,471	19,737	490,298	80,602	7,878	782	1,669	12,303
August	77,807	3,572	52,155	2,581	19,499	488,934	81,581	6,141	1,007	1,883	10,238
September	76,484	3,226	51,931	2,422	18,905	486,930	79,894	7,139	598	1,502	10,862
October	79,751	3,636	54,148	2,586	19,381	488,349	79,663	6,703	771	2,015	9,860
November	76,123	3,351	50,564	2,352	19,856	488,193	77,149	6,908	728	1,691	11,039
December	79,493	3,360	52,313	2,299	21,521	490,788	79,520	6,807	996	1,529	9,210
Total	901,474	40,748	599,716	29,199	231,811	490,788	913,295	79,767	11,790	18,962	131,099

[1] Eastern field includes Appalachian, Lima-Indiana, Michigan, and Illinois and southwestern Indiana fields.
[2] 1927 and 1928 include Salt Dome pools.
[3] Includes Alaska.
[4] 1927 and 1928 annual and semiannual figures from Division of Mines and Minery Department of Natural Resources, California. Monthly figures prorated on basis of monthly reports by American Petroleum Institute.

TABLE 41.—*Monthly statistics of crude petroleum and of exports and imports of refined liquid products*—Continued

[In thousands of barrels of 42 gallons]

	Production of crude oil					Stock of crude oil	Crude oil run to stills	Imports		Exports	
	Total	Eastern field	Gulf and Mid-Continent	Rocky mountain	California			Crude oil	Refined products	Crude oil	Refined products
1929 [5]											
January	82,054	3,446	52,998	2,157	23,453	497,525	78,825	8,075	884	1,972	11,760
February	75,456	3,113	48,025	1,947	22,371	505,920	72,031	7,016	908	1,678	9,507
March	82,463	3,601	52,260	2,209	24,393	512,989	80,708	6,790	1,489	1,600	10,873
April	80,412	3,533	51,375	2,137	23,367	516,161	80,459	7,828	2,634	1,726	10,364
May	84,499	3,901	54,214	2,262	24,122	518,980	84,420	7,552	2,732	1,932	11,080
June	83,407	3,891	52,552	2,272	24,692	523,104	84,400	6,591	2,426	2,615	12,483
July	91,309	4,517	57,552	2,426	26,814	529,983	85,919	6,122	3,176	3,117	12,441
August	92,165	4,340	58,072	2,503	27,250	538,982	86,733	5,800	3,430	2,236	12,771
September	87,453	4,079	54,804	2,446	26,124	543,557	84,099	6,953	2,725	1,988	8,570
October	88,430	4,499	54,569	2,458	26,904	545,186	88,390	5,766	3,643	2,869	13,984
November	78,758	4,095	51,015	2,314	21,334	539,837	81,061	4,554	3,327	2,579	10,565
December	80,917	4,121	52,728	2,358	21,710	540,851	80,663	5,886	2,403	2,089	12,321
Total	1,007,323	47,136	640,164	27,489	292,534	540,851	987,708	78,933	29,777	26,401	136,719
1930											
January	79,453	4,113	51,492	1,865	21,983	528,398	80,163	5,450	3,806	1,808	11,968
February	74,427	3,963	47,740	1,838	20,886	533,286	72,414	4,321	3,224	1,731	10,075
March	77,384	4,222	51,475	1,987	19,700	532,131	80,252	4,827	3,713	1,944	12,496
April	77,175	4,259	52,114	2,033	18,769	529,677	80,434	5,781	3,214	1,900	12,442
May	80,176	4,414	54,697	2,021	19,044	527,391	83,674	4,984	3,603	2,203	9,410
June	76,513	3,947	52,675	1,870	18,021	524,143	80,747	5,767	4,027	2,508	14,257
July	76,743	3,831	52,202	1,908	18,802	523,885	78,644	5,877	4,040	1,973	10,945
August	74,853	3,417	50,655	2,011	18,770	526,012	78,289	5,059	4,329	2,407	12,564
September	70,977	3,396	47,630	1,967	17,984	521,204	75,950	5,808	3,614	1,961	8,753
October	72,696	3,627	48,855	1,970	18,244	518,713	74,016	5,061	3,799	2,167	11,803
November	68,174	3,222	44,958	1,885	18,109	518,170	70,310	4,467	2,807	1,765	7,776
December [6]											
Total (Jan. 1-Nov. 30)	828,571	42,411	554,493	21,355	210,312	518,170	854,893	57,402	40,176	22,367	122,469

[5] Exports include shipments to Alaska, Hawaii, and Porto Rico—and include benzol. Run to stills does not include unfinished rerun.
[6] Not available.

TABLE 42.—*Production, imports, exports, stocks, and domestic demand of gasoline, illuminating oil, gas oil and fuel oil, and lubricating oil, by quarters, 1927–1930*

[In thousands of barrels of 42 gallons]

Period	Gasoline					Gas oil and fuel oil				
	Production	Imports	Exports [1]	Stocks, end of period	Domestic demand [2]	Production	Imports	Exports	Stocks, end of period [3]	Domestic demand [2]
1927										
January–March	80,870	1,429	10,320	52,410	58,592	95,498	2,258	11,201	22,561	(4)
April–June	79,980	1,457	12,330	43,768	77,749	97,046	2,482	12,147	26,590	(4)
July–September	83,844	1,053	10,955	29,738	87,972	100,130	1,581	11,944	31,631	(4)
October–December	85,973	1,064	10,837	32,323	73,615	99,668	1,822	12,047	31,982	(4)
1928										
January–March	84,113	1,193	11,070	41,078	66,474	99,347	2,067	11,564	29,104	(4)
April–June	90,845	1,052	14,731	33,862	83,382	105,255	2,428	12,061	36,085	(4)
July–September	100,744	939	14,567	26,378	95,690	111,148	1,396	10,907	39,900	(4)
October–December	101,481	1,112	12,529	33,066	83,376	110,005	1,377	9,930	34,926	(4)
1929										
January–March	101,109	1,232	13,286	48,224	73,923	108,625	1,947	9,094	30,195	(4)
April–June	107,626	2,283	15,710	42,017	100,406	113,441	5,421	9,367	37,332	(4)
July–September	114,978	2,593	16,740	33,181	109,667	115,350	6,640	9,141	40,646	(4)
October–December	115,410	2,726	16,282	43,132	91,703	111,369	6,536	11,549	34,425	(4)
1930										
January–March	108,330	3,401	16,355	55,239	83,269	96,509	7,163	9,743	32,998	(4)
April–June	114,987	4,757	17,810	50,225	106,948	97,289	5,934	10,081	38,302	(4)
July–September	112,849	5,106	16,318	38,254	113,608	90,808	6,810	8,525	41,480	(4)
October, November	71,016	2,699	10,013	38,705	63,251	58,852	3,877	4,991	40,427	(4)
	Kerosene					Lubricants				
1927										
January–March	14,368	4	4,366	8,753	9,828	7,669	2	2,379	8,035	4,833
April–June	13,579	4	5,110	8,567	8,659	7,811	3	2,384	7,628	5,837
July–September	13,590	4	4,735	8,120	9,306	8,206	1	2,608	7,447	5,780
October–December	14,577	43	5,269	7,669	9,802	8,035	1	2,439	7,860	5,184
1928										
January–March	14,522	63	5,753	7,760	8,787	8,260	-------	2,612	8,383	5,125
April–June	15,125	45	5,624	8,432	8,874	9,127	5	3,217	7,832	6,466
July–September	15,443	21	5,602	8,593	9,701	8,552	3	2,684	7,742	5,961
October–December	15,066	75	5,087	9,001	9,646	8,720	5	2,542	8,340	5,585
1929										
January–March	13,650	63	5,408	7,856	9,451	8,391	7	3,032	8,853	4,853
April–June	14,264	42	4,910	8,348	8,903	8,832	13	2,619	7,869	7,210
July–September	13,292	39	4,452	8,569	8,658	8,931	12	2,631	7,589	6,592
October–December	14,786	64	5,253	9,039	9,591	8,205	7	2,578	8,269	4,954
1930										
January–March	13,639	15	4,918	8,455	9,320	8,727	7	2,507	9,561	4,935
April–June	12,778	105	4,242	8,352	8,744	9,298	6	2,841	9,742	6,282
July–September	11,750	42	4,099	7,771	8,274	8,712	7	2,433	10,257	5,771
October–November	7,466	1	2,419	7,379	5,440	4,955	4	1,538	10,536	3,142

[1] Including shipments to Alaska, Hawaii, and Porto Rico.
[2] Indicated deliveries by refineries for United States consumption.
[3] East of California only, for gas and fuel oil.
[4] Not available owing to absence of complete stock figures; see note 3.

TABLE 43.—*Petroleum: Prices of crude and refined products* [1]

Year	Dollars per barrel		Cents per gallon		
	Crude petroleum	Fuel oil	Gasoline	Kerosene	Lubricating oil
1917	1.77	1.57	20.6	8.5	19.5
1918	2.22	2.01	21.7	10.2	30.9
1919	2.25	1.59	22.2	12.7	32.2
1920	3.44	2.79	26.5	17.1	49.0
1921	1.86	1.30	22.3	12.9	27.6
1922	1.78	1.24	21.7	12.4	20.4
1923	1.71	1.20	17.5	12.8	19.4
1924	1.84	1.35	15.9	12.7	23.0
1925	1.96	1.46	16.6	12.3	26.1
1926	2.03	1.47	17.5	14.7	26.1
1927	1.55	1.14	15.0	12.9	25.3
1928	1.54	.91	14.7	12.9	24.3
1929	1.67	.89	13.9	13.4	25.3

[1] Statistical Abstract of the United States, 1930, p. 783. Prices of crude and fuel oil in dollars per barrel of 42 gallons; others in cents per gallon. Compiled by Joseph C. Pogue. The weighted average prices are computed from 5 principal grades of crude oil at wells, from 5 markets each for kerosene and gasoline from tank wagon, from 5 refining locations for fuel oil, and for 5 grades of lubricating oil.

TABLE 44.—*Petroleum—Average price per barrel paid for crude petroleum at the wells, 1924–1928, by States*

[Source: Petroleum in 1928, by G. R. Hopkins and A. B. Coons, Bureau of Mines. Based on actual purchases, including premiums]

State	1924	1925	1926	1927	1928	1929
Alaska	(1)	$4.25	(1)	(1)	(1)	(1)
Arkansas	$0.94	.89	$1.11	$1.06	$0.86	$0.8
California [2]	1.20	1.42	1.54	1.13	.99	1.1
Colorado	1.10	1.48	1.84	1.20	.99	1.0
Illinois	1.76	1.94	2.22	1.67	1.54	1.6
Indiana:						
Southwestern	1.80	1.92	2.22	1.65	1.53	1.6
Northeastern	1.93	2.06	2.07	1.51	1.24	1.4
Total Indiana	1.84	1.95	2.19	1.63	1.50	1.6
Kansas	1.54	1.94	2.26	1.42	1.36	1.4
Kentucky	1.97	2.32	2.43	1.67	1.61	1.7
Louisiana:						
Gulf coast	1.63	1.57	1.39	1.21	1.16	1.2
Northern	1.41	1.61	1.70	1.33	1.20	1.2
Total Louisiana	1.44	1.60	1.65	1.30	1.18	1.2
Michigan	-------	2.50	2.69	1.90	1.55	1.3
Montana	1.33	1.57	1.32	1.40	1.59	1.8
New Mexico	1.30	1.71	1.96	1.37	1.36	1.7
New York	3.64	3.70	3.68	3.17	3.36	3.9
Ohio:						
Central and eastern	2.74	2.67	2.74	2.02	2.20	2.4
Northwestern	2.00	2.17	2.34	1.80	1.59	1.7
Total Ohio	2.52	2.53	2.64	1.97	2.06	2.2
Oklahoma	1.57	1.97	2.31	1.43	1.39	1.6
Pennsylvania	3.61	3.62	3.56	3.06	3.27	3.4
Tennessee	1.80	2.21	2.37	1.50	1.52	1.7
Texas:						
Gulf coast	1.56	1.62	1.50	1.30	1.19	1.4
Rest of State	1.51	1.86	1.96	1.10	.87	1.1
Total Texas	1.52	1.81	1.85	1.14	.92	1.2
Utah	(1)	1.00	(1)	(1)	(1)	(1)
West Virginia	3.52	3.48	3.46	2.89	3.03	3.2
Wyoming	1.23	1.76	1.98	1.40	1.28	1.4
Other	[3] 3.38	-------	[3] 1.25	[3] 4.71	[3] 5.00	4.2
United States	1.43	1.68	1.88	1.30	1.17	1.4

[1] Included under "Other."
[2] Division of Mines and Mining, Department of Natural Resources, California.
[3] Alaska and Utah.

TABLE 45.—*Value of crude petroleum at wells, 1928 and 1929* [1]

	1928		1929	
	Total	Average per barrel	Total	Average per barrel
Alaska	(2)		(2)	
Arkansas	$27,450,000.00	$0.86	$21,896,000.00	$0.88
California [3]	230,000,000.00	.99	321,367,000.00	1.10
Colorado	2,750,000.00	.99	2,380,000.00	1.01
Illinois	9,980,000.00	1.54	10,430,000.00	1.65
Indiana:				
Southwestern	1,470,000.00	1.53	1,520,000.00	1.66
Northeastern	110,000.00	1.24	90,000.00	1.43
Total Indiana	1,580,000.00	1.50	1,610,000.00	1.64
Kansas	52,500,000.00	1.36	62,510,000.00	1.46
Kentucky	11,850,000.00	1.61	13,220,000.00	1.70
Louisiana:				
Gulf coast	8,150,000.00	1.16	9,150,000.00	1.23
Rest of State	17,700,000.00	1.20	16,550,000.00	1.26
Total Louisiana	25,850,000.00	1.18	25,700,000.00	1.25
Michigan	920,000.00	1.55	6,140,000.00	1.36
Montana	6,400,000.00	1.59	7,260,000.00	1.82
New Mexico	1,280,000.00	1.36	2,170,000.00	1.19
New York	8,750,000.00	3.36	13,170,000.00	3.90
Ohio:				
Central and eastern	11,950,000.00	2.20	13,200,000.00	2.51
Northwestern	2,520,000.00	1.59	2,570,000.00	1.73
Total Ohio	14,470,000.00	2.06	15,770,000.00	2.34
Oklahoma	347,600,000.00	1.39	364,650,000.00	1.43
Pennsylvania	32,550,000.00	3.27	44,800,000.00	3.79
Tennessee	70,000.00	1.52	30,000.00	1.58
Texas:				
Gulf coast	47,120,000.00	1.19	59,930,000.00	1.21
West Texas	80,520,000.00	.65	110,780,000.00	.83
Rest of State	108,660,000.00	1.15	151,810,000.00	1.33
Total Texas	236,300,000.00	.92	322,520,000.00	1.09
Utah	(2)		(2)	
West Virginia	17,150,000.00	3.03	20,070,000.00	3.60
Wyoming	27,400,000.00	1.28	24,700,000.00	1.28
Other	[4] 30,000.00	5.00	[4] 30,000.00	4.29
United States	1,054,880,000.00	1.17	1,280,417,000.00	1.27

[1] Source: Annual Petroleum Statement No. P. 69, Bur. Mines.
[2] Included in "Other."
[3] Division of Mines, Dept. of Natural Resources, California.
[4] Alaska and Utah.

TABLE 46.—*General summary table—Petroleum*

[Quantities in barrels of 42 gallons]

	1927	1928	1929
World production	1,262,582,000	1,324,734,000	1,484,451,000
United States production	901,129,000	901,474,000	1,007,323,000
Venezuela production	63,134,000	105,749,000	137,472,000
All other countries	298,319,000	317,511,000	339,656,000
Per cent of world total	100.0	100.0	100.0
United States	71.4	68.0	67.9
Venezuela	5.0	8.0	9.3
Natural gasoline produced in the United States	39,075,000	43,191,000	53,183,000
Crude oil and natural gasoline combined	940,204,000	944,665,000	1,060,506,000
Imports:			
Crude oil	58,383,000	79,767,000	78,933,000
Refined liquid products	13,281,000	11,700,000	29,632,000
Total	71,664,000	91,467,000	108,565,000

TABLE 46.—*General summary table—Petroleum*—Continued

[Quantities in barrels of 42 gallons]

	1927	1928	1929
Exports:			
Crude oil	15,843,000	18,966,000	26,401,000
Refined liquid products	115,399,000	126,159,000	126,377,000
Total	131,242,000	145,125,000	152,778,000
Ratio of imports to domestic production of crude oil and natural gasoline	7.6	9.7	10.2
Ratio of exports to domestic production of crude oil and natural gasoline	14.0	15.4	14.4
Production plus imports minus exports (crude oil and natural gasoline)	982,743,000	1,005,466,000	1,113,038,000
Increase or decrease of stocks of crude and refined oils at end of year	+70,103,000	+22,782,000	+68,156,000
Consumption by refineries:			
Crude oil	828,835,000	913,295,000	987,708,000
Domestic	778,729,000	835,711,000	912,191,000
Imported	50,106,000	77,584,000	75,517,000
Unfinished oils re-run (net)	12,879,000	15,970,000	15,969,000
Natural gasoline treated by refineries	32,162,000	35,223,000	46,457,000
Total above	873,876,000	964,488,000	1,050,134,000
Value:			
Crude oil produced at wells	$1,172,830,000	$1,054,880,000	$1,280,417,000
Natural gasoline production at point of consumption	118,688,000	138,944,000	158,231,000
Natural gas production at point of consumption	317,930,000	364,000,000	413,000,000
Cost of materials, fuel, and power used by refineries	1,752,997,000	----------	2,055,734,000
Value added to material by refining	369,652,000	----------	555,947,000
Total value of refinery products	2,142,649,000	----------	2,611,681,000
Imports—			
Crude oil	78,609,000	90,473,000	79,943,000
From Venezuela, Netherland West Indies, and Trinidad and Tobago [1]	29,754,000	49,101,000	44,987,000
Refined liquid products	33,638,000	40,943,000	61,045,000
From Venezuela, Netherland West Indies, and Trinidad and Tobago [1]	17,352,000	31,618,000	56,578,000
Other refined products (paraffin and paraffin wax)	1,187,000	1,426,000	2,591,000
Total	113,434,000	132,642,000	143,579,000
From Venezuela, Netherland West Indies, Trinidad and Tobago [1]	47,106,000	80,719,000	101,585,000
Exports:			
Crude oil	25,900,000	26,800,000	37,800,000
Refined liquid products	429,663,000	465,214,000	493,382,000
To Venezuela, Netherland West Indies, Trinidad and Tobago	804,000	2,109,000	7,392,000
Other refined products	30,296,000	33,852,000	30,009,000
Total	485,859,000	525,866,000	561,191,000
Total to Venezuela, Netherland West Indies, Trinidad and Tobago	804,000	2,109,000	7,392,000
PRICES AND AVERAGE UNIT VALUES			
Average value all crude oil at well (per barrel)	$1.30	$1.17	$1.27
Average value domestic crude oil at refinery (per barrel)	[2]	[2]	[2]
Average value crude oil exported as such at port (per barrel)	1.64	1.41	1.43
Average value crude oil imported in foreign country (per barrel)	1.35	1.13	1.01
Pogue price indexes:			
Average crude at wells (per barrel)	1.55	1.54	1.67
Average kerosene (per gallon)	.129	.129	.13
Average gasoline (per gallon)	.150	.147	.13
Average fuel oil (per barrel)	1.14	.91	.89
Average lubricating oil (per gallon)	.253	.243	.25
Average posted prices paid by pipe-line companies for Oklahoma, Kansas, crude of 33°–33.9° gravity	1.31	1.20	1.23

[1] Nearly all originating in Venezuela.

[2] See Table, Part II

UNITED STATES TARIFF COMMISSION

WOVEN WIRE FENCING AND NETTING

REPORT TO THE PRESIDENT

ON THE

DIFFERENCES IN COSTS OF PRODUCTION OF WOVEN WIRE FENCING AND NETTING IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

WITH APPENDIX
PROCLAMATION BY THE PRESIDENT

REPORT No. 5
SECOND SERIES

Reprinted for the United States Tariff Commission from Senate Document 269
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WASHINGTON, D. C.

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CONTENTS

	Page
tter of transmittal	v
ndings of the commission	3
Conclusion	4
mmary of information obtained in the commission's investigation:	
Rates of duty	5
Tariff classification	5
Scope of investigation	5
Description	6
Uses	6
Domestic production	6
Exports	7
Imports	7
Cost of production in the United States	10
Foreign costs	11
Comparison of domestic and foreign costs	11
roclamation by the President	15

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, February 2, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith
ıe report of investigation made by the United States Tariff Commis-
ɔn of differences in costs of production in the United States and in
ıe principal competing country, for the purposes of section 336 of
itle III of the tariff act of 1930, of * * * woven wire fencing
ıd wire netting.

Each of these reports is accompanied by a summary of information
ɔtained by the commission in the particular investigation.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

The PRESIDENT,
The White House.

WOVEN WIRE FENCING AND NETTING

RESULTS OF AN INVESTIGATION OF THE DIFFERENCES IN COSTS OF PRODUCTION OF WOVEN WIRE FENCING AND NETTING IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY FOR THE PURPOSES OF SECTION 336, TITLE III, OF THE TARIFF ACT OF 1930

WOVEN WIRE FENCING AND NETTING

UNITED STATES TARIFF COMMISSION,
Washington, D. C., February 2, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of woven wire fencing and netting in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation the commission finds that the present rate of duty on woven wire fencing and netting composed of wire smaller than eight one-hundredths and not smaller than three one-hundredths of an inch in diameter fixed by the tariff act of 1930 (par. 397), namely 45 per cent ad valorem, should be increased to 50 per cent ad valorem if such fencing or netting be coated with zinc or other metal before weaving, and that it should be increased to 60 per cent ad valorem if such fencing or netting be so coated after weaving.

The commission instituted this investigation on June 20, 1930, in compliance with Senate Resolution 295, dated June 18, 1930. Public notice of the hearing was given on September 22, 1930. At this hearing, held in Washington, D. C., on November 5, 1930, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. Imports of woven wire fencing and netting increased from practically nothing prior to 1925 to somewhat in excess of 300,000 bales (rolls containing 150 lineal feet each) in 1928, declined to 153,545 bales in 1929, and further declined in 1930. Domestic production amounted to about 1,881,000 bales in 1929, a substantial decrease from early postwar production when there were substantial exports. Since 1929 there has been an appreciable further decline, the exact amount being unknown. In 1929 imports constituted about 7.6 per cent of apparent domestic consumption. The above facts relate to a period of time when the rate of duty was 40 per cent ad valorem. The year 1929 is a representative period for the purposes of this investigation.

2. Germany is the principal competing country.

3. There are two principal grades of woven wire fencing and netting; that galvanized before weaving and that galvanized after weaving. There is foreign competition in both grades. The grade galvanized

after weaving is somewhat more important in domestic production than is the grade galvanized before weaving, whereas the reverse is true with respect to imports. Woven wire fencing and netting produced in Germany is like and similar to corresponding grades of the domestic product for the purposes of section 336 of the tariff act of 1930.

4. The distribution of both imported and domestic woven wire fencing and netting is country wide. The principal markets are represented by Los Angeles, San Francisco, Seattle, Chicago, Houston, Atlanta, and Philadelphia.

5. The cost of production of woven wire fencing and netting as defined in section 336 (h) (4) was not readily ascertainable for the principal competing country. The commission, therefore, in accordance with section 336 (e) (2) (A) accepted the weighted average of invoice prices of the imported article as evidence of such cost.

6. Costs of production ascertained in accordance with section 336:

(A) The costs of production in the United States of each of 11 representative kinds of woven wire fencing and netting, comprising various meshes, sizes, widths, and both types of galvanizing, sold in each of the principal markets of the United States, were determined for the period of the investigation. The corresponding costs of production in the principal competing country of woven wire fencing and netting sold in these markets, as evidenced by invoice prices, were also determined.

(B) The costs of transportation and other delivery charges of the 11 representative kinds of netting and fencing from the centers of domestic production to the principal markets in the United States during 1929, and the corresponding costs and charges from the centers of production in the principal competing country to the same markets were determined.

(C) No other relevant factors constituting a substantial or measurable advantage or disadvantage in competition were disclosed in the course of this investigation.

The total costs of production, including transportation, and delivery to the principal markets, as so determined, are shown in tables in the attached summary of information.

The percentage by which the costs of the domestic product sold in each market exceeded the costs of the foreign product sold in that market was computed and a general weighted average percentage of difference in costs for all markets combined has been derived therefrom.

The amounts by which the weighted average domestic costs of production, including delivery to the principal markets, of woven wire fencing and netting, exceeded the foreign cost, expressed as percentages of the value in the principal competing country, were 51.9 per cent for woven wire fencing and netting galvanized before weaving, and 61.7 per cent for woven wire fencing and netting galvanized after weaving.

Conclusion

The commission finds it shown by the investigation (a) that the duty of 45 per cent ad valorem fixed by statute on woven wire fencing and netting composed of wire smaller than eight one-hundredths and not smaller than three one-hundredths of an inch in

diameter coated with zinc or other metal does not equalize the differences in the costs of production, including transportation and delivery to the principal markets in the United States, of the said domestic article and the like or similar foreign article produced in the principal competing country; (b) that an increase in that rate of 5 per cent ad valorem on woven wire fencing and netting coated with zinc or other metal before weaving and an increase of 15 per cent ad valorem on woven wire fencing and netting coated with zinc or other metal after weaving are necessary to equalize said differences; and (c) that the rates of duty necessary to equalize said differences are 50 per cent ad valorem on woven wire fencing and netting coated with zinc or other metal before weaving and 60 per cent ad valorem on woven wire fencing and netting coated with zinc or other metal after weaving.

Appended to this statement of findings is a summary of information obtained in the investigation.

Respectfully submitted.

HENRY P. FLETCHER,
Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
JOHN LEE COULTER,
ALFRED P. DENNIS,
EDGAR B. BROSSARD,
LINCOLN DIXON,
Commissioners.

SUMMARY OF INFORMATION OBTAINED IN THE COMMISSION'S INVESTIGATION

RATES OF DUTY

Woven wire fencing and netting, the subject of this report, during all recent tariff acts has been classified under general provisions of the metals schedule. Duty is now assessed at 45 per cent ad valorem under paragraph 397 as a manufacture of metal, n. s. p. f. Under the act of 1922, woven wire fencing and netting was dutiable at 40 per cent ad valorem as a manufacture of metal, n. s. p. f. Previously it was a manufacture of wire.

TARIFF CLASSIFICATION

The question of whether woven wire fencing and netting was properly dutiable under paragraph 399 of the act of 1922 (397 of the act of 1930) as a manufacture of metal, n. s. p. f., at the rate of 45 per cent ad valorem, or under paragraph 318 as woven wire fabric with meshes not finer than 30 wires to the lineal inch in warp or filling at 25 per cent ad valorem is now pending in the Court of Customs and Patent Appeals.

SCOPE OF THE INVESTIGATION

The order of investigation includes "woven wire fencing and wire netting, all the foregoing composed of wire smaller than eight one-hundredths and not smaller than three one-hundredths of an inch

in diameter," and applies to netting and fencing classified under the provisions of paragraph 397 of the act of 1930, or paragraph 399 of the act of 1922. Ordinary wire fencing of the "Page" type and "hex" netting of wires fully 14 gage and larger (some fish-trap netting) are not included, nor is netting of fine gage wire, such as that used in making wire glass. The wire in the latter type is smaller than three one-hundredths of an inch in diameter.

DESCRIPTION

Wire netting is ordinarily woven with an hexagonal mesh of 16 gage (0.0625 inch) to 20 gage (0.0348 inch) wire and is galvanized either before or after weaving. The usual mesh sizes are 1-inch, 1½-inch, and 2-inch, and the netting is prepared in rolls (bales) usually containing 150 lineal feet, and in widths ranging from 12 to 72 inches.

There is some netting, mostly used for special purposes, made of 14-gage (0.08 inch) wire.

There are three styles of netting: (1) "Hex," which is a double-twisted netting with hexagonal mesh; (2) "straight-line" or "half-hex," in which the longitudinal wires run straight, the filling wires being twisted over the longitudinal wires, forming a half hexagonal mesh; and (3) "straight-line rectangular or square mesh," in which both longitudinal and transverse wires run straight, the transverse wires being locked or twisted over the longitudinal wires. The straight-line and square-mesh types are comparatively new and manufactured in relatively small volume.

USES

Wire netting is used principally as fencing for poultry, gardens, and lawns, as backstops for tennis courts and other recreational units, and as a structural material to form a foundation for stucco, the latter being an important use on the Pacific coast. It is also used in the tops of automobile bodies and for fish traps.

DOMESTIC PRODUCTION

There are 14 plants in the United States, operated by 11 concerns engaged in the production of wire netting and employing somewhat more than 2,000 men. Their production in 1929 was 1,881,433 bales, and their capacity as reported by the trade is 3,500,000 bales per year.

Most of the production is in two regions: (1) the East, comprising the States of Massachusetts, Connecticut, New York, and New Jersey, with 5 plants and 53 per cent of the total output; (2) the Midwestern region in Ohio, Indiana, and Illinois, with 4 plants and 34 per cent of the total production. The remainder of the total output, 13 per cent, is from 1 plant in Colorado and 3 in California.

Records from five plants, typical of the entire industry, show a production of 1,014,890 bales in 1927, 1,234,718 bales in 1928, and 1,112,439 bales in 1929. Apparently 1928 was the year of peak production, followed by a recession in 1929.

There is a wide range of combinations of mesh, wire size and width, and there are two methods of galvanizing. Most of the production is concentrated in 1-inch mesh and 2-inch mesh and in three wire

sizes, as shown by the following table covering the operations of five plants that produced about 54 per cent of the total United States output in 1929.

Woven wire netting: Analysis of the production of five domestic plants in 1929

	Production	Per cent of total
	Bales	
Galvanized after weaving:		
2-inch mesh, 16-gage wire	38,701	3.91
2-inch mesh, 19-gage wire	98,720	9.97
2-inch mesh, 20-gage wire	139,621	14.10
1-inch mesh, 20-gage wire	181,542	18.33
Total, galvanized after weaving	458,584	46.31
Galvanized before weaving:		
2-inch mesh, 19-gage wire	91,663	9.26
2-inch mesh, 20-gage wire	141,186	14.26
1-inch mesh, 20-gage wire	132,460	13.38
Total, galvanized before weaving	365,309	36.90
All other	166,374	16.79
Total, 5 plants	990,267	100.00

The above figures do not include fish-trap netting, produced to the extent of about 120,000 bales of 100 lineal feet per year, or the straight-line type of poultry netting, which is produced by some plants in moderate amounts and is a comparatively new product.

Production tends to be seasonal, as most sales to consumers are made in the spring, so that orders are taken in the fall and made up principally in the winter.

EXPORTS

Nine concerns reporting for 1927 and 1928 show exports amounting to 16,700 and 14,700 bales, respectively, and the exports in 1929 by the entire industry are reported as only 3,679 bales.

Exports are at present almost entirely to the countries of North and South America, and according to the testimony are negligible as compared with shipments to foreign countries prior to 1926, when the export markets were largely taken over by European producers.

The loss of export markets accounts in great measure for the excess plant capacity of the domestic industry.

IMPORTS

An accurate measurement of the trend of imports over a period of years is impossible because of the classification of wire netting in the general basket clause of the metals schedule without a separate statistical classification.

However, testimony before the committees of Congress and the commission indicates clearly that imports began in 1925 and proved at first unprofitable on account of rejections of a considerable quantity of inferior material. The domestic trade estimates that imports were about 100,000 bales in 1926, 200,000 bales in 1927, and 367,000 bales in 1928.

The importers representing the Steel Union (the sales organization of the European Steel Cartel, which was expanded in 1930 to include wire netting) give total shipments to the United States as 266,926

bales in 1928, 134,212 bales in 1929, and 71,847 bales in the first six months of 1930. The commission's data show importations of 153,545 bales in 1929, which agrees fairly closely with the importer's figure for that year, allowing for lag of about one month (the time required to ship from the foreign plant to the Pacific coast) during the busy season, and for the imports of those distributors who do not import through the Steel Union. The indications are that imports reached their peak in 1928, declined substantially in 1929, and probably still further in 1930.

The commission found it impracticable to secure information from official sources covering imports for more than the 18-month period, January 1, 1929 to June 30, 1930. Because the invoices in process of liquidation were not available to the commission, the data for the first six months of 1930 are not considered reliable as representative of total imports. Inasmuch as all available invoices (data from some protested invoices not available) and collectors' returns were secured for the calendar year 1929, there is little possibility of appreciable error in the compilation. Analyses of all available data show that imports are principally from Germany, followed by Belgium and Holland, as indicated by the following table:

Wire netting: Imports, by countries, in 1929

Country	Quantity	Ratio to total
	Bales	*Per cent*
Germany	104,247	67.89
Holland	40,696	26.51
Belgium	8,602	5.60
Total	153,545	100.00

Importations are received practically throughout the United States. The distribution by ports of entry was as follows:

Wire netting: Imports in 1929 by ports of entry

[Compiled from foreign invoice and entry data]

Ports	Bales	Ratio to grand total
		Per cent
Los Angeles	37,377	24.34
San Francisco	42,928	27.96
Seattle	18,813	12.25
Portland	8,782	5.72
Pacific coast	107,900	70.27
Chicago	3,400	2.21
Philadelphia	9,691	6.31
Boston	2,435	1.59
Minneapolis	3,641	2.37
Northern States	19,167	12.48
Atlanta	8,226	5.36
Memphis	1,875	1.22
Charleston	1,221	.80
New Orleans	2,166	1.41
Houston	12,990	8.46
Southern States	26,478	17.25
Grand total	153,545	100.00

It was found that the division of imports between netting galvanized before weaving and netting galvanized after weaving was substantially equal in the Pacific coast and in North Central and Northeastern territory. However, in Southern territory, netting galvanized before weaving predominated, as indicated by the following tabulation, which includes all netting upon which detailed information was available, or 59 per cent of total imported.

Wire netting: Imports in 1929

Ports	Galvanized before weaving	Galvanized after weaving	Total
	Bales	*Bales*	*Bales*
Los Angeles	8,584	21,784	30,368
San Francisco	220	5,543	5,763
Oakland	----------	500	500
Seattle	11,287	500	11,787
Portland	4,310	2,700	7,010
Tacoma	426	----------	426
Boise	350	----------	350
Total, Pacific coast	25,177	31,027	56,204
Charleston	921	300	1,221
Atlanta	8,226	----------	8,226
Memphis	1,875	----------	1,875
New Orleans	2,131	35	2,166
Houston	12,990	----------	12,990
Total, Southern	26,143	335	26,478
Boston	----------	1,495	1,495
Chicago	1,600	1,800	3,400
Minneapolis	2,014	1,617	3,631
Total, Northern	3,614	4,912	8,526
Total	54,934	36,274	91,208

In the Pacific coast markets, which take 70 per cent of all importations, the demand for uses other than in building construction is supplied largely by netting galvanized before weaving, while the importations of netting galvanized after weaving are mostly in the 36-inch widths, conform to the building codes of the Pacific coast, and are used as a base for stucco. A few thousand bales are imported to the Pacific Northwest for use in the construction of fish traps. Such netting is usually of relatively heavy gage wire with large mesh and is invariably galvanized before weaving.

Wire netting is sold widely throughout the United States. Most manufacturers have warehouses at strategic points throughout the country. A large part of the domestic output is sold through hardware jobbers, the largest being located in St. Louis, Louisville, and Chicago. There is also a large outlet through mail-order houses. Some specialties, for example, netting for automobile tops, are sold direct from the factories to manufacturing concerns. About 175,000 bales per year are used for automobile tops.

The commission found that the relative costs of transportation and delivery, both of domestic wire netting and the imported product, to the entire marketing area of the country could be determined with substantial accuracy on the basis of the transportation rates to six major distributing centers, namely, Los Angeles and San Francisco

(taken as one market and having nearly equal transportation costs), Seattle, Houston, Atlanta, Philadelphia, and Chicago.

The distribution of netting to Pacific coast territory takes place largely from five cities—Portland, Seattle, Los Angeles, San Francisco, and Sacramento. During 1929 this territory consumed 70 per cent of all netting imported and nearly 20 per cent of the total domestic production, but it contains only 7 per cent of the population of the United States.

COST OF PRODUCTION IN THE UNITED STATES

Costs of production were ascertained for all domestic concerns which produced wire netting during 1929, the period selected as the basis for cost comparisons. A detailed analysis of departmental costs was made for four plants with regard to the principal classes of netting, and these were found to correspond closely with the cost records kept by the producers for these respective classes. From the other domestic producers cost data were secured by questionnaire. The cost figures include all overhead charges and imputed interest on the capital invested calculated at 6 per cent. They do not include Federal taxes or selling expenses.

Detailed costs of production were calculated for 11 representative items in 1-inch and 2-inch mesh. These two meshes include over 95 per cent of domestic production and over 90 per cent of imports. It was found that the costs of other widths and combinations of mesh and gage were closely proportional to those of the 11 items used in the cost calculations, which may thus be considered representative of all domestic costs.

The average costs of these 11 items, weighted on the basis of the total production of all wire netting in the several individual plants, are shown in the accompanying table. This gives not only an average for the United States, but also averages for the eastern district and the midwestern Rocky Mountain districts. Figures for the Pacific coast district can not be shown separately, as to do so would disclose the operations of individual concerns.

Wire netting: Average cost of production in the United States

Item	Cost per bale of 150 lineal feet, 1929		
	Eastern district	Midwest and Rocky Mountain district	Total, United States
Galvanized before weaving:			
1-inch mesh, 20-gage wire, 24-inch width	$2.388	$1.947	$2.242
1-inch mesh, 20-gage wire, 36-inch width	3.380	2.853	3.202
1-inch mesh, 20-gage wire, 48-inch width	4.363	3.773	4.180
2-inch mesh, 20-gage wire, 48-inch width	2.198	1.736	2.049
2-inch mesh, 20-gage wire, 60-inch width	2.650	2.318	2.646
2-inch mesh, 20-gage wire, 72-inch width	3.142	2.714	3.136
Galvanized after weaving:			
1-inch mesh, 18-gage wire, 36-inch width	5.803	5.021	5.564
1-inch mesh, 19-gage wire, 36-inch width	4.381	3.998	4.305
1-inch mesh, 20-gage wire, 36-inch width	3.648	3.532	3.644
2-inch mesh, 16-gage wire, 36-inch width	4.702	3.831	4.405
2-inch mesh, 20-gage wire, 36-inch width	1.975	1.538	1.836

FOREIGN COSTS

The commission found it impracticable to obtain cost data from the accounts of the foreign manufacturers. Accordingly, as authorized by law, it accepted invoice prices of the imported wire netting as evidence of foreign costs. The sales of foreign wire netting in the United States are made on the basis of fairly constant discounts from the standard price list, and there have been no major fluctuations in wages or conditions of production in the principal competing country during recent years.

Invoice prices were obtained for the same 11 items of wire netting as were taken as representative of domestic costs. The prices, together with details of transportation and other costs of delivery, were secured separately for the wire entered at each of the six representative markets above mentioned. The figures covered all available invoices of entries during 1929.

The actual cost calculations for imported wire netting represent 23,500 bales, or 15 per cent of the total imports from all countries during 1929, and 22.5 per cent of the total imports during that year from Germany. The investigation showed that the data for the items covered are representative of all woven wire netting imported from Germany.

While, in accordance with law, the cost comparison was confined to wire netting from Germany, the principal competing country, the investigation showed that the prices in, and transportation and other charges from, the other countries of origin are substantially equal to those for Germany.

COMPARISON OF DOMESTIC AND FOREIGN COSTS

The following table shows the comparative domestic and German costs of the 11 items of wire netting sold in each of the six representative markets during 1929. The figures for domestic netting distinguish cost of production from freight, but those of foreign netting represent the combined total of cost of production in the foreign country and costs of transportation and delivery to the market. As a basis for determining the rate of duty necessary to equalize the difference in costs, the dutiable value of the imported wire netting is shown, together with the ratio of the difference between the domestic and foreign costs to such dutiable value. This ratio represents the ad valorem rate of duty which would equalize the cost difference in the case of each item sold in each market.

Woven wire netting: Comparisons of cost (or price) delivered to principal markets, per bale of 150 lineal feet, 1929

	At-lanta [1]	Hous-ton [2]	Phila-del-phia [1]	Chi-cago [1]	Seattle [3]	Los Angeles and San Fran-cisco [3]
GALVANIZED BEFORE WEAVING						
2-inch mesh, 20-gage wire, 48-inch width:						
Domestic cost of production	$2.008	$2.011	$2.008	$2.008	$2.049	$2.049
Freight	.192	.173	.105	.102	.238	.231
Total, domestic delivered	2.200	2.184	2.113	2.110	2.287	2.280
Foreign delivered	1.720	1.523	1.583	1.727	1.577	1.557
Difference	.480	.661	.530	.383	.710	.723
Foreign value at plant	1.482	1.418	1.436	1.436	1.424	1.419
Percentage ratio: Difference to value at foreign plant	32.39	46.61	36.91	26.67	49.86	50.95
2-inch mesh, 20-gage wire, 60-inch width:						
Domestic cost of production	2.588	2.588	2.588	2.588	2.646	2.646
Freight	.240	.181	.114	.152	.278	.275
Total, domestic delivered	2.828	2.769	2.702	2.740	2.924	2.921
Foreign delivered	2.120	1.895	1.963	2.139	1.971	1.991
Difference	.708	.874	.739	.601	.953	.930
Foreign at plant	1.830	1.770	1.789	1.789	1.782	1.773
Percentage ratio: Difference to value at foreign plant	38.69	49.38	41.31	33.59	53.48	52.45
2-inch mesh, 20-gage wire, 72-inch width:						
Domestic cost of production	3.062	3.062	3.062	3.062	3.136	3.136
Freight	.291	.220	.138	.185	.336	.332
Total, domestic delivered	3.353	3.282	3.200	3.247	3.472	3.468
Foreign delivered	2.540	2.277	2.362	2.574	2.360	2.349
Difference	.813	1.005	.838	.673	1.112	1.119
Foreign at plant	2.190	2.132	2.150	2.150	2.140	2.139
Percentage ratio: Difference to value at foreign plant	37.12	47.14	38.98	31.30	51.96	52.31
1-inch mesh, 20-gage wire, 24-inch width:						
Domestic cost of production	2.223	2.210	2.223	2.223	2.242	2.242
Freight	.183	.167	.102	.094	.226	.221
Total, domestic delivered	2.406	2.377	2.325	2.317	2.468	2.463
Foreign delivered	1.620	1.440	1.486	1.581	1.486	1.487
Difference	.786	.937	.839	.736	.982	.976
Foreign at plant	1.394	1.338	1.340	1.335	1.325	1.310
Percentage ratio: Difference to value at foreign plant	56.38	70.03	62.61	55.13	74.11	74.50
1-inch mesh, 20-gage wire, 36-inch width:						
Domestic cost of production	3.187	3.167	3.187	3.187	3.202	3.202
Freight	.272	.246	.151	.141	.334	.327
Total, domestic delivered	3.459	3.413	3.338	3.328	3.536	3.529
Foreign delivered	2.328	2.060	2.150	2.251	2.080	2.179
Difference	1.131	1.353	1.188	1.077	1.456	1.350
Foreign at plant	2.008	1.916	1.923	1.910	1.867	1.912
Percentage ratio: Difference to value at foreign plant	56.32	70.62	61.78	56.39	77.99	70.61
1-inch mesh, 20-gage wire, 48-inch width:						
Domestic cost of production	4.150	4.124	4.150	4.150	4.180	4.180
Freight	.357	.323	.198	.185	.438	.430
Total, domestic delivered	4.507	4.447	4.348	4.335	4.618	4.610
Foreign delivered	3.109	2.746	2.829	3.007	2.801	2.837
Difference	1.398	1.701	1.519	1.328	1.817	1.773
Foreign at plant	2.679	2.554	2.567	2.540	2.506	2.555
Percentage ratio: Difference to value at foreign plant	52.18	66.60	59.17	52.28	72.51	69.39

[1] Weighted on production in 8 plants—5 eastern, 3 midwest.
[2] Weighted on production in 9 plants—5 eastern, 4 midwest.
[3] Weighted on production in 11 plants—5 eastern, 4 midwest, 2 Pacific coast.

Woven wire netting: Comparisons of cost (or price) delivered to principal markets, per bale of 150 linear feet, 1929—Continued

	Atlanta	Houston	Philadelphia[1]	Chicago[1]	Seattle[1]	Los Angeles and San Francisco[1]
GALVANIZED AFTER WEAVING						
2-inch mesh, 16-gage wire, 36-inch width:						
Domestic cost of production	-------	-------	$4.395	$4.395	-------	$4.405
Freight	-------	-------	.261	.263	-------	.572
Total, domestic delivered	-------	-------	4.656	4.658	-------	4.977
Foreign delivered	-------	-------	2.952	3.281	-------	2.958
Difference	-------	-------	1.704	1.377	-------	2.019
Foreign at plant	-------	-------	2.589	2.589	-------	2.589
Percentage ratio: Difference to value at foreign plant	-------	-------	65.82	53.19	-------	77.98
2-inch mesh, 20-gage wire, 36-inch width:						
Domestic cost of production	-------	-------	1.808	1.808	$1.836	1.836
Freight	-------	-------	.083	.084	.189	.204
Total, domestic delivered	-------	-------	1.891	1.892	2.025	2.040
Foreign delivered	-------	-------	1.285	1.402	1.276	1.224
Difference	-------	-------	.606	.490	.749	.816
Foreign at plant	-------	-------	1.171	1.171	1.137	1.205
Percentage ratio: Difference to value at foreign plant	-------	-------	51.75	41.84	65.88	67.72
1-inch mesh, 18-gage wire, 36-inch width:						
Domestic cost of production	-------	-------	5.527	5.527	5.564	5.564
Freight	-------	-------	.288	.272	.649	.629
Total, domestic delivered	-------	-------	5.815	5.799	6.213	6.193
Foreign delivered	-------	-------	3.403	3.777	3.427	3.455
Difference	-------	-------	2.412	2.022	2.786	2.738
Foreign at plant	-------	-------	3.124	3.124	3.035	3.028
Percentage ratio: Difference to value at foreign plant	-------	-------	77.21	64.72	91.80	90.42
1-inch mesh, 19-gage wire, 36-inch width:						
Domestic cost of production	-------	-------	4.245	4.245	-------	4.305
Freight	-------	-------	.208	.204	-------	.452
Total, domestic delivered	-------	-------	4.453	4.449	-------	4.757
Foreign delivered	-------	-------	3.036	3.302	-------	3.033
Difference	-------	-------	1.417	1.147	-------	1.724
Foreign at plant	-------	-------	2.677	2.677	-------	2.677
Percentage ratio: Difference to value at foreign plant	-------	-------	52.93	42.85	-------	64.40
1-inch mesh, 20-gage wire, 36-inch width:						
Domestic cost of production	-------	-------	3.604	3.604	3.644	3.644
Freight	-------	-------	.166	.155	.373	.362
Total, domestic delivered	-------	-------	3.770	3,759	4.017	4.006
Foreign delivered	-------	-------	2.304	2.485	2.248	2.391
Difference	-------	-------	1.466	1.274	1.769	1.615
Foreign at plant	-------	-------	2.074	2.717	2.008	2.098
Percentage ratio: Difference to value at foreign plant	-------	-------	70.68	46.89	88.10	76.98

[1] Weighted on production in 10 plants—5 eastern, 3 midwest, 2 Pacific coast.

It will be noted from the table that the cost differences, both on wire netting galvanized before weaving and on that galvanized after weaving, are relatively greater for wire sold on the Pacific coast than elsewhere. The cost of transportation by water from the principal com-

peting country to the Pacific coast is relatively low. The cost of production of the domestic manufacturers situated on the Pacific coast is higher than that of the eastern and midwestern producers, principally because the former are distant from sources of raw material. The position of eastern and midwestern manufacturers as regards transportation to the Pacific coast is less favorable, in comparison with the foreign manufacturer, than in the case of eastern or midwestern markets. The cost differences are also higher for wire sold in the Gulf coast markets than for that sold in Atlanta, Philadelphia, or Chicago, again principally by reason of the transportation situation.

In order to arrive at the rate of duty necessary to equalize cost differences for wire netting sold in the country considered as a whole, the percentages shown in the preceding table for each kind of netting in each market have been combined into general weighted averages, distinguishing between wire netting galvanized before weaving and that galvanized after weaving. In calculating these general averages, the relative importance of the different kinds of netting and the relative importance of the consumption of domestic and imported netting combined, in the several markets have been taken into account.

The following table shows that the weighted average difference in costs of domestic and foreign wire netting sold in the principal markets of the United States is equal in the case of netting galvanized before weaving to 51.9 per cent of the dutiable value of the wire netting imported from Germany. The corresponding ratio in the case of wire netting galvanized after weaving is 61.7 per cent. These are the percentages on the basis of which the commission makes its finding as to the rates of duty necessary to equalize the differences in costs.

Wire netting: Differences in domestic and foreign costs of production, expressed as percentages of the value in the chief competing country, by items and markets, 1929

Item	Atlanta	Houston	Philadelphia	Chicago	Seattle	Los Angeles and San Francisco	Weighted average
Galvanized before weaving:							
2-inch mesh, 20-gage wire, 48-inch width	32.39	46.61	36.91	26.67	49.86	50.95	38.53
2-inch mesh, 20-gage wire, 60-inch width	38.69	49.38	41.31	33.59	53.48	52.45	43.03
2-inch mesh, 20-gage wire, 72-inch width	37.12	47.14	38.98	31.30	51.96	52.31	41.18
1-inch mesh, 20-gage wire, 24-inch width	56.38	70.03	62.61	55.13	74.11	74.50	63.96
1-inch mesh, 20-gage wire, 36-inch width	56.32	70.62	61.78	56.39	77.99	70.61	64.03
1-inch mesh, 20-gage wire, 48-inch width	52.18	66.60	59.17	52.28	72.51	69.39	60.53
Average	45.51	58.40	50.13	42.56	63.32	61.70	51.88
Galvanized after weaving:							
2-inch mesh, 16-gage wire, 36-inch width	----------	----------	65.82	53.19	----------	77.98	62.86
2-inch mesh, 20-gage wire, 36-inch width	----------	----------	51.75	41.84	65.88	67.72	52.59
1-inch mesh, 18-gage wire, 36-inch width	----------	----------	77.21	64.72	91.80	90.42	76.52
1-inch mesh, 19-gage wire, 36-inch width	----------	----------	52.93	42.85	----------	64.40	50.97
1-inch mesh, 20-gage wire, 36-inch width	----------	----------	70.68	46.89	88.10	76.98	64.41
Average	----------	----------	63.68	49.90	81.93	75.50	61.69

INCREASING RATE OF DUTY ON WOVEN WIRE FENCING AND NETTING

By the President of the United States of America

A PROCLAMATION

Whereas, under and by virtue of section 336 of Title III, Part II, of the act of Congress approved June 17, 1930, entitled "An act to provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, to protect American labor, and for other purposes," the United States Tariff Commission has investigated the differences in costs of production of, and all other facts and conditions enumerated in said section with respect to, woven wire fencing and woven wire netting, all the foregoing composed of wire smaller than eight one-hundredths and not smaller than three one-hundredths of an inch in diameter, being wholly or in part the growth or product of the United States and of and with respect to like or similar articles wholly or in part the growth or product of the principal competing country;

Whereas in the course of said investigation a hearing was held, of which reasonable public notice was given and at which parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard;

Whereas the commission has reported to the President the results of said investigation and its findings with respect to such differences in costs of production;

Whereas the commission has found it shown by said investigation that the principal competing country is Germany, and that the duties expressly fixed by statute do not equalize the differences in the costs of production of the domestic articles and the like or similar foreign articles when produced in said principal competing country, and has specified in its report the increases in the rate of duty expressly fixed by statute found by the commission to be shown by said investigation to be necessary to equalize such differences;

And whereas in the judgment of the President such rates of duty are shown by such investigation of the Tariff Commission to be necessary to equalize such differences in costs of production:

Now, therefore, I, Herbert Hoover, President of the United States of America, do hereby approve and proclaim the following rates of duty found to be shown by said investigation to be necessary to equalize such differences in costs of production:

An increase in the rate of duty expressly fixed in paragraph 397 of Title I of said act on woven wire fencing and woven wire netting, all the foregoing composed of wire smaller than eight one-hundredths and not smaller than three one-hundredths of an inch in diameter, coated with zinc or other metal before weaving, from 45 per cent ad valorem to 50 per cent ad valorem;

And an increase in the rate of duty expressly fixed in paragraph 397 of Title I of said act on woven wire fencing and woven wire netting, all the foregoing composed of wire smaller than eight one-hundredths and not smaller than three one-hundredths of an inch in diameter, coated with zinc or other metal after weaving, from 45 per cent ad valorem to 60 per cent ad valorem.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington this 5th day of February in the year of our Lord one thousand nine hundred and thirty-one, and of the Independence of the United States of America the one hundred and fifty-fifth.

[SEAL.] HERBERT HOOVER.

By the President:
HENRY L. STIMSON,
Secretary of State.

○

UNITED STATES TARIFF COMMISSION

WOOD FLOUR

REPORT TO THE PRESIDENT

ON THE

DIFFERENCES IN COSTS OF PRODUCTION OF WOOD FLOUR IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

WITH APPENDIX
PROCLAMATION BY THE PRESIDENT

REPORT No. 6
SECOND SERIES

Reprinted for the United States Tariff Commission from Senate Document 269
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UNITED STATES TARIFF COMMISSION

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THOMAS WALKER PAGE, Vice Chairman
JOHN LEE COULTER
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CONTENTS

	Page
Letter of transmittal	v
Findings of the commission	3
Conclusion	4
Summary of information obtained in the commission's investigation:	
Description and uses	4
Rates of duty	5
United States production	5
Exports	5
Statistics of imports	5
Principal competing country	6
Principal competing grade	6
Comparability and competitiveness of imported and domestic wood flour	7
Principal markets	8
Transportation	8
Dutiable value	8
Cost investigation	8
Proclamation by the President	9

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, February 2, 1931.

MY DEAR MR: PRESIDENT. I have the honor to transmit herewith the report of investigation made by the United States Tariff Commission of differences in costs of production in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, of * * * wood flour.

Each of these reports is accompanied by a summary of information obtained by the commission in the particular investigation.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

The PRESIDENT,
The White House.

WOOD FLOUR

RESULTS OF AN INVESTIGATION OF THE DIFFERENCES IN COSTS OF PRODUCTION OF WOOD FLOUR IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY FOR THE PURPOSES OF SECTION 336, TITLE III, OF THE TARIFF ACT OF 1930

WOOD FLOUR

UNITED STATES TARIFF COMMISSION,
Washington, February 2, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of wood flour in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation the commission finds that the present rate of duty on wood flour fixed by the tariff act of 1930, namely, 33⅓ per cent ad valorem, should be decreased to 25 per cent ad valorem.

The commission instituted this investigation on July 11, 1930, in compliance with Senate Resolution No. 313, dated July 3, 1930.

Public notice of the hearing was given on September 22, 1930. At this hearing, held in Washington, D. C., on November 13, 1930, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. Both domestic production and imports of wood flour have steadily increased in the last five years, for which complete data are available, the total increasing from about 28,000 tons in 1925 to 36,000 tons in 1929. Imports constituted from 22 per cent to 25 per cent of the apparent domestic comsumption. The year 1929 is a representative period for the purpose of this investigation.

2. Norway is the principal competing country.

3. There are several grades of wood flour. The grade used for making linoleum is the most important in quantity and value, both as to domestic production and imports. Wood flour of the linoleum grade produced in Norway is like or similar to the same grade of the domestic product. The cost difference for that grade is representative of the cost difference for all grades for the purposes of section 336 of the tariff act of 1930.

4. The linoleum producing centers of Lancaster and Philadelphia, Pa., are the principal markets in the United States for the linoleum grade of both the domestic and imported wood flour.

5. The cost of production as defined in section 336 (h) (4) was not readily ascertainable for wood flour produced in the principal competing country. The commission, therefore, in accordance with section 336 (e) (2) (A) accepted the weighted average of invoice prices as evidence of such cost.

6. Costs of production ascertained in accordance with section 336:

(A) The cost of production of wood flour of the linoleum grade in the United States was $20.49 per ton for the period covered by the

investigation. The corresponding cost of production in the principal competing country as evidenced by invoice prices was $13.79 per ton. Wood flour imported from Norway absorbs sufficient moisture in transit to increase its weight approximately 2.9 per cent above the invoice weight. The value of the foreign article as ascertained by the customs officers and used in this investigation as dutiable value for the purpose of section 336 is $14.19 per ton.

(B) The cost of transportation and other delivery charges of wood flour of the linoleum grade from the centers of domestic production to the principal markets in the United States was $5.80 per ton during 1929, and the corresponding cost from the centers of production in the principal competing country to the same markets was $9.02 per ton.

(C) No other relevant factors constituting an advantage or disadvantage in competition were disclosed in the course of this investigation.

The total cost of production of wood flour of the linoleum grade in the United States, including transportation and other delivery costs to the principal markets, was thus $26.29 per ton; the corresponding cost of the foreign wood flour was $22.81 per ton; and the difference in such costs was $3.48 per ton.

Conclusion

The commission finds it shown by the investigation (a) that the duty of 33⅓ per cent ad valorem expressly fixed by statute on wood flour does not equalize the difference in the costs of production including transportation and delivery to the principal markets in the United States, of the said domestic article and the like or similar foreign article produced in the principal competing country; (b) that a decrease in that rate of 8⅓ per cent ad valorem is necessary to equalize this difference; and (c) that the rate of duty necessary to equalize said difference is 25 per cent ad valorem.

Appended to this statement of findings is a summary of information obtained in the investigation.

Respectfully submitted.

Thomas Walker Page,
Vice Chairman.
John Lee Coulter,
Alfred P. Dennis,
Edgar B. Brossard,
Lincoln Dixon,
Commissioners.

Chairman Fletcher took no part in this investigation.

Summary of Information Obtained in the Investigation With Respect to Wood Flour

description and uses

Wood flour is mechanically ground wood (principally white pine) screened to uniform finenesses ranging from 40 to 200 mesh per inch. It is used mainly as a filler in the production of linoleum, but is also used in the manufacture of such articles as explosives, plastics and unbreakable dolls.

RATES OF DUTY

	Per cent
ct of 1922	33⅓
ct of 1930	33⅓

UNITED STATES PRODUCTION

Domestic production of wood flour is principally in the States of ew York, Maine, New Hampshire, and Washington, there being ur mills in New York, and one each in Maine, New Hampshire, id Washington. The following statistics for three domestic com- anies operating five mills show the trend of United States production recent years:

ar	Tons produced
23	19, 300
24	18, 683
25	21, 761
26	21, 712
27	23, 218
28	26, 060
29	27, 239

Wood flour in grades suitable for each of the various uses in which is utilized is produced by the domestic industry. Table 1 shows e quantities and percentages of total wood flour shipped from the omestic mills studied to each of the major consuming industries in 29.

ABLE 1.—*Wood flour: Domestic shipments to the principal consuming industries of the United States, 1929*

Consuming industry	Short tons	Per cent
oleum	18, 634	67.0
plosives	3, 840	13.8
stics	4, 260	15.3
ll paper	238	.9
lls	65	.2
scellaneous	768	2.8
Total	27, 805	100.0

EXPORTS

The quantity of domestic wood flour exported is a relatively small rt of the total production. Exports of wood flour are not reported official statistics. In 1929 three domestic producers exported a tal of 548 tons, or the equivalent of 1.9 per cent of the total domes- production during that year. A large part of the wood flour ex- rted in 1929 was for use in the manufacture of explosives at foreign ants in which one of the domestic companies is interested.

STATISTICS OF IMPORTS

Table 2 shows the imports for consumption of wood flour into the nited States for recent years.

TABLE 2.—*Wood flour: United States imports for consumption 1923–1930*

Year	Quantity	Value	Unit valu
	Short tons		*Per short t*
1923	5,496	$82,177	$14.
1924	6,451	96,482	14.
1925	6,117	89,542	14.
1926	6,414	86,461	13.
1927	6,563	80,774	12.
1928	7,245	94,723	13.
1929	9,228	148,155	16.
1930 (10 months)	4,607	59,935	14.

Table 3 shows for 1929 the shipments of imported wood flour t the principal domestic consuming industries. These data are base on an analysis of the sales records of a number of importers and cov approximately 80 per cent of total imports in 1929.

TABLE 3.—*Wood flour: Shipments of imported wood flour to the principal consu ing industries of the United States, 1929*

Consuming industry	Short tons	Per cen
Linoleum	4,815	6
Explosives	1,562	2
Plastics	943	1
Dolls		
Wall paper	67	
Miscellaneous		
Total	7,387	10

New York is the principal port of entry for imported wood flou over 98 per cent of the total imports in 1929 being entered there.

PRINCIPAL COMPETING COUNTRY

Norway is the principal competing country for wood flour in Unit States markets. The following table shows for 1929 the imports f consumption according to country of origin:

TABLE 4.—*Wood flour: United States imports for consumption, by countries, 19*

Country	Quantity	Per cent of quantity	Value	Uni valu
	Short tons			*Per sh ton*
Norway	4,606	50.0	$65,563	$1
Netherlands	2,980	32.3	49,336	1
Germany	860	9.3	18,821	2
Sweden	706	7.6	12,562	1
Canada	76	.8	1,873	2
Total	9,228	100.0	148,155	1

PRINCIPAL COMPETING GRADE

Wood flour for the linoleum industry as shown in Table 1, page and Table 3, above, constitutes 67 per cent of the domestic prod tion and 65 per cent of the imports entered at the port of New Yo

nety-seven per cent of the imports from Norway, the principal mpeting country, are of this grade and it is apparent that wood ur of the linoleum grade represents the major competition in the ited States between the domestic and foreign industries.

MPARABILITY AND COMPETITIVENESS OF IMPORTED AND DOMESTIC WOOD FLOUR

In order to determine the comparability and competitiveness of ported and domestic wood flour, the commission, in its investiga-n, obtained information as to the shipments of each to the principal nsuming industries. Table 5, following, shows for each of the portant consuming industries the relative proportions supplied by mestic production and by imports in 1929.

BLE 5.—*Wood flour: Use of domestic and imported in the important consuming industries of the United States, 1929*

Consuming industry	Total	Proportion of wood flour supplied by—			
		Domestic production		Imports	
		Quantity	Per cent	Quantity	Per cent
	Short tons	*Short tons*		*Short tons*	
oleum	23,449	18,634	79.5	4,815	20.5
losives	3,840	3,840	100.0		
stics	5,822	4,260	73.2	1,562	26.8
lls	1,008	65	6.4	943	94.6
ll paper	238	238	100.0		
scellaneous	835	768	92.0	67	8.0
Total	35,192	27,805	79.0	7,387	21.0

It will be noted that with the exception of the explosives and wall-per industries which use domestic wood flour exclusively, all of the portant consuming industries use both domestic and imported od flour.

With respect to the doll industry which uses principally imported ur, it is not quite clear whether the predominance of imported od flour in that field is due to quality advantage of the imported aterial or whether the importers offer special facilities to the doll ade in the form of small order deliveries from warehouse and pecially favorable credit and collection terms. As a consumer of od flour the doll industry is relatively small, using only 2.86 per nt of the total shipments analyzed for 1929.

Many arguments were advanced at the public hearing as to the periority of the domestic or imported wood flour. The preference the individual consumer appears to be more largely due to his timate knowledge of the characteristics of a particular mill's prod-t to which he has become accustomed.

Grade for grade, domestic and imported wood flours appear to be lly comparable and are unquestionably competitive, especially at used in the manufacture of linoleum.

PRINCIPAL MARKETS

The principal United States markets for wood flour are somewha different for the various grades. For the grade used by the linoleun industry, the manufacturing districts of Lancaster and Philadelphia Pa., and Newark and Trenton, N. J., are the principal competin markets. Lancaster, Pa., was the most important single competin market for both domestic and imported wood flour in 1929. I appears, however, that there is a tendency of the direct competitio to shift from one market to another. Information given at th public hearing indicated that Lancaster would not be the larges market for both domestic and imported wood flour in 1930.

TRANSPORTATION

The cost of transportation is an important factor of competitio between the wood flour industry of the United States and that of th principal competing country.

For the domestic industry the cost of transportation has bee computed by averaging the freight rates from each center of produ tion to each of the four principal United States markets—Lancast and Philadelphia, Pa., and Newark and Trenton, N. J. In averagir the rates from the various centers of production the individual rat were weighted with the total production of linoleum grade wood flo at each production center.

For the imported product, foreign inland charges, ocean freigh and supplementary charges from the principal competing country the principal port of entry, and the average of the freight rates fro the port of entry to the four principal competing United States ma kets were included.

The average transportation cost for the domestic product is $5.8 per ton; for the imported, $9.02 per ton, comprised of foreign inlar charges $0.02, ocean freight and supplementary charges $5.72, ar domestic freight from port of entry to principal markets $3.28 per to

DUTIABLE VALUE

Information obtained in the investigation shows that wood flo of the linoleum grade imported from Norway absorbs sufficient mo ture in transit to increase its weight approxiately 2.9 per cent abo the foreign declared weight.

In determining the dutiable value of imports the customs offici apply the declared value per ton to the total tonnage of mater entered with the result that the dutiable value of the shipment increased an average of 2.9 per cent. Dividing the total dutiab value thus determined by the foreign declared weight, on which t imported wood flour is sold to the domestic consumer, the dutiab value per ton reflects the 2.9 per cent increase. The average forei declared value per ton of $13.79 for the linoleum grade wood flo reported from Norway increased 2.9 per cent gives a dutiable val of $14.19 per ton.

COST INVESTIGATION

Domestic costs.—In its investigation the commission obtained c data for the domestic industry from four companies operating mills in New York, Maine, and New Hampshire. From each of t

nills studied, information was obtained for the purpose of enabling he commission to compute the production cost of each of the various grades produced.

Foreign costs.—The commission obtained, as evidence of the foreign costs of production, the weighted average of invoice prices of shipments entered at the port of New York, as provided in section 336 e) (2) (A) of the tariff act of 1930.

Cost period.—The calendar year 1929, the latest available fiscal period, was taken as a representative period for which cost comparisons should be made.

Comparison of United States and foreign costs.—In Table 6, following, he comparative costs per ton of domestic and foreign wood flour of he linoleum grade, the principal competing grade, are shown.

TABLE 6.—*Wood flour: Comparative costs of production of the linoleum grade in the United States and in the principal competing country, 1929*

Cost item	Cost per short ton	
	Domestic	Foreign
Raw materials	$8.54	----------
Factory expense	9.62	----------
General and administrative expense	1.29	----------
Total factory cost excluding interest	19.45	----------
Interest on investment	1.04	----------
Total factory cost including interest	20.49	$13.79
Transportation and charges to principal competing United States markets	5.80	[1] 9.02
Total cost including transportation to principal competing United States markets	26.29	22.81
Difference in cost—amount by which domestic cost exceeds foreign	$3.48	
Dutiable value	14.19	
Ad valorem duty (per cent) required to equalize difference in cost	24.52	

[1] Includes foreign inland charges $0.02, ocean freight and supplementary charges $5.72, and domestic freight from port of entry to principal United States markets $3.28 per ton.

DECREASING RATE OF DUTY ON WOOD FLOUR

By the President of the United States of America

A PROCLAMATION

Whereas, under and by virtue of section 336 of Title III, Part II, of the act of Congress approved June 17, 1930, entitled "An act to provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, to protect American labor, and for other purposes," the United States Tariff Commission has investigated the differences in costs of production of, and all other facts and conditions enumerated in said section with respect to, wood flour, being wholly or in part the growth or product of the United States and of and with respect to a like or similar article wholly or in part the growth or product of the principal competing country.

Whereas in the course of said investigation a hearing was held, of which reasonable public notice was given and at which parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard;

Whereas the commission has reported to the President the results of said investigation and its findings with respect to such differences in costs of production;

Whereas the commission has found it shown by said investigation that the principal competing country is Norway, and that the duties expressly fixed by statute do not equalize the difference in the costs of production of the domestic article and the like or similar foreign article when produced in said principal competing country, and has specified in its report the decrease in the rate of duty expressly fixed by statute found by the commission to be shown by said investigation to be necessary to equalize such difference;

And whereas in the judgment of the President such rate of duty is shown by such investigation of the Tariff Commission to be necessary to equalize such difference in costs of production.

Now, therefore I, Herbert Hoover, President of the United States of America, do hereby approve and proclaim a decrease in the rate of duty expressly fixed in paragraph 412 of Title I of said act on wood flour, from 33⅓ per cent ad valorem to 25 per cent ad valorem, the rate found to be shown by said investigation to be necessary to equalize such difference in costs of production.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington this 5th day of February in the year of our Lord one thousand nine hundred and thirty-one, and of the Independence of the United States of America the one hundred and fifty-fifth.

HERBERT HOOVER.

[SEAL.]

By the President:

HENRY L. STIMSON,
Secretary of State.

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UNITED STATES TARIFF COMMISSION

PIGSKIN LEATHER

REPORT TO THE PRESIDENT

ON THE

DIFFERENCES IN COSTS OF PRODUCTION OF PIGSKIN LEATHER IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

WITH APPENDIX
PROCLAMATION BY THE PRESIDENT

REPORT No. 7
SECOND SERIES

Reprinted for the United States Tariff Commission from Senate Document 269
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CONTENTS

	Page
ɛtter of transmittal	v
indings of the commission	3
Conclusion	4
ımmary of information obtained in the commission's investigation:	
Rates of duty	5
Scope of the investigation	5
Cost period covered by the investigation	5
Domestic production	6
Imports	6
Analysis of invoices	6
Exports	6
Chief competing country	6
Principal markets in the United States	7
Comparability of foreign and domestic leather	7
Comparison of domestic and foreign costs	7
roclamation by the President	8

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, February 2, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the report of investigation made by the United States Tariff Commission of differences in costs of production in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, of * * * pigskin leather.

Each of these reports is accompanied by a summary of information obtained by the commission in the particular investigation.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

THE PRESIDENT,
The White House.

PIGSKIN LEATHER

RESULTS OF AN INVESTIGATION OF THE DIFFERENCES IN COSTS OF PRODUCTION OF PIGSKIN LEATHER IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY FOR THE PURPOSES OF SECTION 336, TITLE III, OF THE TARIFF ACT OF 1930

PIGSKIN LEATHER

UNITED STATES TARIFF COMMISSION,
Washington, February 2, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of pigskin leather in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation, the commission finds that the present rate of duty on pigskin leather, in the rough, in the white, crust, or russet, partly finished, or finished, fixed by the tariff act of 1930, namely, 25 per cent ad valorem, should be decreased to 15 per cent ad valorem. The commission makes no findings with respect to pigskin leather imported to be used in the manufacture of footwear and dutiable at 10 per cent ad valorem under paragraph 1530 (c).

The commission instituted this investigation on July 11, 1930, in compliance with Senate Resolution No. 313, dated July 3, 1930. Application No. 23 was merged with this investigation.

The resolution of the Senate mentions the cost of production of both pigskin leather and pigskins. Pigskins are free of duty and under the law there is no authority for a transfer from the free list to the dutiable list by virtue of section 336. The commission has, therefore, made no investigation of the cost of production of pigskins. There is only a small production of pigskins for tanning in the United States, and the domestic producers of pigskin leather are largely dependent upon imported raw or rough-tanned pigskins.

Public notice of the hearing was given on September 22, 1930. At this hearing, held in Washington, D. C., on November 11, 1930, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. Both domestic production and imports showed a generally increasing trend during the period 1925 to 1929, although imports were somewhat less in value in 1929 than in 1928. The importation of pigskin leather in 1929 was equal to between 35 and 50 per cent of domestic consumption. The year 1929 is a representative period for the purpose of this investigation.

2. Austria is the principal competing country.

3. Under the tariff act of 1922, when pigskin leather was free of duty, and under the tariff act of 1930, when dutiable, imports have been mainly of pigskin leather tanned in the whole skin. This is the

only class of pigskin leather in which there exists substantial competition between the domestic and foreign product in the markets of the United States. This leather, produced in Austria and imported into the United States, is like or similar to the same class of the domestic product. This class has been taken in this report for comparing domestic and foreign costs for the purposes of section 336 of the tariff act of 1930.

4. New York City is the principal market in the United States for both domestic and imported pigskin leather.

5. The cost of production as defined in section 336 (h) (4) was not readily ascertainable for pigskin leather produced in the principal competing country. The commission, therefore, in accordance with section 336 (e) (2) (A), accepted the weighted average of invoice prices as evidence of such costs.

6. Costs of production ascertained in accordance with section 336:

(*a*) The commission has found the cost of production and the transportation and other delivery costs to the principal market in the United States, of pigskin leather tanned in the whole skin in the United States and the corresponding cost of pigskin leather produced in the principal competing country, as evidenced by invoice prices, but these costs can not be disclosed because to do so would reveal the operations of individual concerns.

(*b*) No other relevant factors constituting an advantage or disadvantage in competition were disclosed in the course of this investigation.

Conclusion

The commission finds it shown by the investigation (*a*) that the duty of 25 per cent ad valorem expressly fixed by statute on pigskin leather, in the rough, in the white, crust, or russet, partly finished, or finished, if not imported to be used in the manufacture of boots, shoes, or footwear, or cut or wholly or partly manufactured into uppers, vamps, or any forms or shapes suitable for conversion into boots, shoes, or footwear, does not equalize the difference in the cost of production, including transportation and other delivery costs to the principal market in the United States, of the said domestic article and the like or similar foreign article produced in the principal competing country; and (*b*) that a decrease in that rate of 10 per cent ad valorem is necessary to equalize this difference; and (*c*) that the rate of duty necessary to equalize said difference is 15 per cent ad valorem.

The commission makes no finding with respect to pigskin leather used in the manufacture of footwear, dutiable at 10 per cent ad valorem under paragraph 1530 (c). Relatively little pigskin leather tanned in the whole skin, either domestic or foreign, is used for footwear in the United States.

The commission also makes no findings with respect to pigskin leather, grained, printed, embossed, ornamented, or decorated, in any manner or to any extent, or by any other process made into fancy leather, dutiable at 30 per cent ad valorem under paragraph 1530 (d). So far as the commission could ascertain, there are no imports into the United States of pigskin leather of this description.

Appended to this statement of findings is a summary of information obtained in the investigation.

Respectfully submitted.

HENRY P. FLETCHER,
Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
JOHN LEE COULTER,
ALFRED P. DENNIS,
EDGAR B. BROSSARD,
LINCOLN DIXON,
Commissioners.

SUMMARY OF INFORMATION OBTAINED IN THE INVESTIGATION OF PIGSKIN LEATHER

RATES OF DUTY

In the tariff act of 1922 pigskin leather, being one of the kinds of "all leather not specially provided for," was free of duty, paragraph 1606. The act of 1930 provides a rate on leather [1] not made from hides of cattle of the bovine species and imported for general uses of 25 per cent ad valorem; and 10 per cent if imported to be used in the manufacture of boots, shoes, or other footwear. These rates apply to pigskin leather.

The provisions of the act of 1930 are as follows:

PARAGRAPH 1530(c). Leather (except leather provided for in subparagraph (d) of this paragraph) made from hides or skins of animals (including fish, reptiles, and birds, but not including cattle of the bovine species), in the rough, in the white, crust, or russet, partly finished, or finished, 25 per centum ad valorem; * * * any of the foregoing if imported to be used in the manufacture of boots, shoes, or footwear, or cut or wholly or partly manufactured into uppers, vamps, or any forms or shapes suitable for conversion into boots, shoes, or footwear, 10 per centum ad valorem.

SCOPE OF THE INVESTIGATION

The information obtained by the commission shows that leather made of whole pigskins is the only class of pigskin leather under paragraph 1530(c) in which there is either actual or potential competition between the imported and domestic product. This investigation was, therefore, limited to leather made from whole pigskins. There is produced in the United States, however, a large quantity of pigskin leather from strips of pigskin, but if such leather is produced in foreign countries it was not imported into the United States in any substantial quantity, if at all, even when there was no duty on pigskin leather of any kind.

All imports of pigskin leather in 1929 were free of duty. Practically all of these imports were used for making articles other than footwear.

COST PERIOD COVERED BY THE INVESTIGATION

The domestic and foreign cost data obtained in this investigation are for the year 1929, which was found to be a representative period for the purpose of this investigation.

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[1] Pigskin leather, grained, printed, embossed, ornamented, or decorated in any manner, or to any extent, or by any other process made into fancy leather, is dutiable at 30 per cent ad valorem under paragraph 1530(d) of the tariff act of 1930, but so far as the commission could ascertain there are no imports into the United States of pigskin leather of this description.

DOMESTIC PRODUCTION

There are no official statistics of production of pigskin leather in this country which may be compared directly with imports of pigskin leather tanned in the whole skin. Nor can the commission, without revealing the operations of individual concerns, make known the production of tanners included in this investigation. The commission estimates, however, that imports of pigskin leather tanned in the whole skin in 1929 were equal to 35 to 50 per cent of the domestic consumption in that year.

IMPORTS

Official import statistics for pigskin leather include both finished and rough-tanned leather. Imports into the United States for consumption during the years 1926–1929 and for the first six months of 1930 have been as follows:

Pigskin leather: Imports for consumption

Year	Pounds	Value	Year	Pounds	Value
1926	90,116	$83,952	1929	272,440	$326,122
1927	204,140	189,439	1930 (Jan. 1–June 17)	77,642	115,887
1928	345,176	380,766			

In the years immediately preceding the passage of the tariff act of 1930, imports were an important factor in the domestic consumption of pigskin leather finished in the whole skin. Imports in the five and a half months following the passage of the act have, however, averaged only about $2,000 per month.

ANALYSIS OF INVOICES

An analysis was made of the invoices covering imports entered at the customs district of New York during 1929 and detailed information was obtained regarding importations of the five largest importers of finished pigskin leather during that period. Two of these, importing more than half the total footage, used the leather for the manufacture of leather goods in their own factories, while the other three imported for resale.

EXPORTS

Exports of pigskin leather from the United States are not separately reported in official statistics. The two producers from whom information was obtained did not export pigskin leather.

CHIEF COMPETING COUNTRY

The value of imports of pigskin leather from Austria and the United Kingdom was approximately equal during 1929, with the latter slightly in the lead. Austria has materially exceeded the United Kingdom in 1930. Austria has been taken as the chief competing country for the purposes of this investigation. The situation as to imports has changed in the past few years, for prior to 1929 the United Kingdom was the principal source; Austria has made consistent gains in the exportation of pigskin leather to the United States since 1927.

Based on the analysis of invoices and other information obtained during the investigation, the commission determined that Austria was the chief competing country for purposes of this investigation. The invoice analysis covered over 80 per cent of the imports of pigskin leather from Austria in 1929.

However, whether the United Kingdom or Austria is taken as the principal competing country is of no practical significance, since the results of the investigation, based upon imports for either of these countries, are substantially the same.

PRINCIPAL MARKETS IN THE UNITED STATES

Four of the five importers of pigskin leather—two of whom import for their own use in manufacturing leather goods and two for resale—are located in or near New York City. The importations of pigskin leather by customs districts in 1929 were as follows:

New York	$276,731
Massachusetts	18,360
Philadelphia	13,673
All other	17,358
Total	326,122

More of the domestic pigskin leather is used in the metropolitan area of New York City than in any other one place, and the bulk of the domestic output is distributed from that center. New York City is, therefore, the principal market of the United States for domestic and imported pigskin leather made from whole skins.

COMPARABILITY OF FOREIGN AND DOMESTIC LEATHER

Samples of the various grades and qualities of pigskin leather, tanned in the whole skin, were selected from domestic tanners and from importers. These grades represented the whole price range of both the imported and domestic products. The witnesses appearing at the hearing agreed that these samples of domestic and imported leather were representative, comparable, and competitive.

COMPARISON OF DOMESTIC AND FOREIGN COSTS

There are but two principal producers in the United States who tan pigskin leather from the whole skin. The commission ascertained detailed costs of production of pigskin leather from one of these producers and estimates of costs from the other. The producer whose costs were obtained in detail is the only one in this country whose product is like or similar to the pigskin leather imported from Austria.

The average cost of tannery-run pigskin leather produced in the United States by this one manufacturer was compared with the average cost, as evidenced by invoice prices, of imports of pigskin leather from Austria. The amount received for splits sold by the domestic manufacturer in 1929 was deducted from his cost, although in 1930 there appeared to be no market for such by-products. Transportation and other charges incident to the delivery of both domestic and imported leather were computed to the principal market, New York City. Neither the selling expenses of the domestic producer nor of the importers, incurred in the United States, have been included.

On the basis of the above comparison, the difference in the weighted average cost of production of pigskin leather in the United States and Austria, the chief competing country, is equivalent to 15 per cent ad valorem of the foreign value of the imported leather.

DECREASING RATE OF DUTY ON PIGSKIN LEATHER

By the President of the United States of America

A PROCLAMATION

Whereas under and by virtue of section 336 of Title III, Part II, of the act of Congress approved June 17, 1930, entitled "An act to provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, to protect American labor, and for other purposes," the United States Tariff Commission has investigated the differences in costs of production of, and all other facts and conditions enumerated in said section with respect to, pigskin leather, being wholly or in part the growth or product of the United States and of and with respect to a like or similar article wholly or in part the growth or product of the principal competing country;

Whereas in the course of said investigation a hearing was held, of which reasonable public notice was given and at which parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard;

Whereas the commission has reported to the President the results of said investigation and its findings with respect to such differences in costs of production;

Whereas the commission has found it shown by said investigation that the principal competing country is Austria, and that the duties expressly fixed by statute do not equalize the difference in the costs of production of the domestic article and the like or similar foreign article when produced in said principal competing country, and has specified in its report the decrease in the rate of duty expressly fixed by statute found by the commission to be shown by said investigation to be necessary to equalize such difference; and

Whereas in the judgment of the President such rate of duty is shown by such investigation of the Tariff Commission to be necessary to equalize such difference in costs of production:

Now, therefore, I, Herbert Hoover, President of the United States of America, do hereby approve and proclaim a decrease in the rate of duty expressly fixed in paragraph 1530 (c) of Title I of said act on pigskin leather, in the rough, in the white, crust, or russet, partly finished, or finished, not imported to be used in the manufacture of boots, shoes, or footwear, or cut or wholly or partly manufactured into uppers, vamps, or any forms or shapes suitable for conversion into boots, shoes, or footwear, from 25 per cent ad valorem to 15 per cent ad valorem, the rate found to be shown by said investigation to be necessary to equalize such difference in costs of production.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington this 5th day of February in the year of our Lord one thousand nine hundred and thirty-one, and of the independence of the United States of America the one hundred and fifty-fifth.

HERBERT HOOVER.

[SEAL.]

By the President:

HENRY L. STIMSON,
Secretary of State.

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UNITED STATES TARIFF COMMISSION

HATS, BONNETS, AND HOODS OF STRAW

REPORT TO THE PRESIDENT

ON THE

DIFFERENCES IN COSTS OF PRODUCTION OF HATS, BONNETS, AND HOODS OF STRAW AND OTHER MATERIALS IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

WITH APPENDIX
PROCLAMATION BY THE PRESIDENT

REPORT No. 8
SECOND SERIES

Reprinted for the United States Tariff Commission from Senate Document 269
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UNITED STATES TARIFF COMMISSION

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THOMAS WALKER PAGE, Vice Chairman
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SIDNEY MORGAN, Secretary

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UNITED STATES TARIFF COMMISSION
WASHINGTON, D. C.

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CONTENTS

	Page
Letter of transmittal	v
Findings of the commission	3
Conclusion	5
Summary of information obtained in commission's investigation:	
Character of the product	5
Rates of duty	5
Domestic production	6
Imports	7
Principal competing country	7
Exports	7
Basis of cost comparison	8
Cost data	9
Principal market and transportation	9
Summary of cost comparison	9
Proclamation by the President	10

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, February 2, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the report of investigation made by the United States Tariff Commission of differences in costs of production in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, of * * * hats, bonnets, and hoods of straw and other materials.

Each of these reports is accompanied by a summary of information obtained by the commission in the particular investigation.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

THE PRESIDENT,
The White House.

HATS, BONNETS, AND HOODS OF STRAW

RESULTS OF AN INVESTIGATION OF THE DIFFERENCES IN COSTS OF PRODUCTION OF HATS, BONNETS, AND HOODS OF STRAW AND OTHER MATERIALS IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY FOR THE PURPOSES OF SECTION 336, TITLE III, OF THE TARIFF ACT OF 1930

HATS, BONNETS, AND HOODS OF STRAW AND OTHER MATERIALS

UNITED STATES TARIFF COMMISSION,
Washington, February 2, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the difference in costs of production of hats, bonnets, and hoods of straw and other materials (par. 1504 (b)) in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation the commission finds that the present rate of duty on "Hats, bonnets, and hoods, composed wholly or in chief value of straw, chip, paper, grass, palm leaf, willow, osier, rattan, real horsehair, cuba bark, ramie, or manila hemp, whether wholly or partly manufactured; if sewed (whether or not blocked, trimmed, bleached, dyed, colored, or stained)," fixed by paragraph 1504 (b) (4) of the tariff act of 1930, namely, $4 per dozen and 60 per cent ad valorem, should be decreased to $3 per dozen and 50 per cent ad valorem.

The commission makes no findings with respect to hats, bonnets, and hoods, dutiable under paragraph 1504 (b) (1), (2), (3), and (5).

The commission instituted this investigation on July 11, 1930, in compliance with Senate Resolution No. 313, dated July 3, 1930.

Public notice of the hearing was given on September 22, 1930. At this hearing, held in Washington, D. C., on October 28, 1930, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. Domestic production of men's sewed braid hats, for which statistics first became available in 1927, decreased from 705,314 dozens valued at $13,565,679 to 657,026 dozens valued at $11,441,439 in 1929. Imports for consumption of sewed braid hats (par. 1504 (b) (4)), (chiefly men's), have steadily increased in the last five years, the total increasing from 213,039 dozens valued at $1,344,805 (foreign value) in 1925 to 597,936 dozens valued at $2,260,907 (foreign value) in 1929. This decrease in domestic production and increase in imports developed under the rates of duty in the tariff act of 1922. These rates were increased, however, in the tariff act of 1930. During the period from 1925 to March 14, 1926, the rate of duty on such hats was 60 per cent ad valorem, and from that date through 1929 the duty was 60 per cent ad valorem except on men's sewed straw hats valued at $9.50 or less per dozen, on which the duty was 88 per cent ad valorem. Based on quantity, imports in 1929 constituted approximately 48 per cent of apparent domestic consumption. Domestic

exports of sewed braid hats are negligible. The straw hat season, 1929 (July 1, 1929, through June, 1930), is a representative period for the purpose of this investigation.

2. Italy is the principal competing country.

3. There are several grades and varieties of sewed hats. Sennit straw hats are the most important group in quantity and value, and represent more than half of the total consumption of hats covered by paragraph 1504 (b) (4). The commission selected samples of sennit straw hats produced in the United States and in the principal competing country, which samples it finds to be like or similar, and to be representative as regards cost differences of the hats dutiable under this paragraph, and which have been taken in this report for comparing domestic and foreign costs for the purposes of section 336 of the tariff act of 1930. The samples have been arranged under three types—split, improved, and flatfoot.

4. New York City is the principal market for the purpose of cost comparisons.

5. The cost of production as defined in section 336 (h) (4) was not readily ascertainable for straw hats produced in the principal competing country. The commission, therefore, in accordance with section 336 (e) (2) (A) accepted the weighted average of invoice prices as evidence of such cost. The commission had evidence of the amount of profit included in the invoice prices and therefore the commission made a deduction for such profit and added estimated interest on capital invested at the same rate which was included in the costs of domestic production.

6. Costs of production ascertained in accordance with section 336:

(A) The costs of production of the representative samples of straw hats of the split, improved, and flatfoot sennit types in the United States were, respectively, $9.05, $11.41, and $11.07 per dozen for the period covered by the investigation. The corresponding costs of production in the principal competing country, as evidenced by adjusted invoice prices, were, respectively, $3.15, $3.73, and $4.17 per dozen.

(B) The costs of transportation and other delivery charges of the representative samples of straw hats from the centers of domestic production to the principal market in the United States were, respectively, $0.17, $0.16, and $0.13 per dozen during 1929, and the corresponding costs and charges from the centers of production in the principal competing country to the same market were, respectively, $1.07, $1.12, and $1.10.

(C) No other relevant factors constituting an advantage or disadvantage in competition were disclosed in the course of this investigation.

The total costs of production of the representative samples of split, improved, and flatfoot sennit hats in the United States, including transportation and other delivery costs to the principal market, were, respectively, $9.22, $11.57, and $11.20 per dozen; the corresponding costs of the foreign hats were, respectively, $4.22, $4.85, and $5.27 per dozen; and the differences in such costs were, respectively, $5, $6.72, and $5.93 per dozen. The dutiable values of the imported hats of these three types were, respectively, $4.06, $5.31, and $5.95, per dozen.

Conclusion

The commission finds it shown by the investigation (a) that the duty of $4 per dozen and 60 per cent ad valorem expressly fixed by statute on "Hats, bonnets, and hoods, composed wholly or in chief value of straw, chip, paper, grass, palm leaf, willow, osier, rattan, real horsehair, cuba bark, ramie, or manila hemp, whether wholly or partly manufactured; if sewed (whether or not blocked, trimmed, bleached, dyed, colored, or stained)" does not equalize the difference in costs of production, including transportation and delivery to the principal market in the United States, of the said domestic article and the like or similar foreign article produced in the principal competing country; (b) that a decrease in that rate of $1 per dozen and 10 per cent ad valorem is necessary to equalize this difference; and (c) that the rate of duty necessary to equalize said difference is $3 per dozen and 50 per cent ad valorem.

Appended to this statement of findings is a summary of information obtained in the investigation.

Respectfully submitted.

Henry P. Fletcher,
Chairman.

Thomas Walker Page,
Vice Chairman.

John Lee Coulter,
Alfred P. Dennis,
Edgar B. Brossard,
Lincoln Dixon,
Commissioners.

Summary of Information Obtained in the Investigation with Respect to Hats, Bonnets, and Hoods of Straw and Other Materials (Par. 1504 (b))

CHARACTER OF THE PRODUCT

The present report, for reasons stated above, is confined to the product covered by paragraph 1504 (b) (4) of the tariff act of 1930. This product is ordinarily designated as sewed straw hats, and both the domestic production and the imports in fact consist chiefly of sewed straw hats for men. The fuller phraseology of the tariff definition is given in the next section of this report. It includes not only hats of straw, but also those of various other materials. One of these materials is designated as "chip." This is a form of wood shavings. Chip hats have recently become an important factor in imports, but were not produced in commercial quantities in the United States during the period covered by the investigation. The greater part of the total consumption of products dutiable under this bracket of the tariff paragraph consists of ordinary sewed hats of straw.

RATES OF DUTY

The rate of duty applicable to sewed hats of straw and other materials under the tariff act of 1930 is $4 per dozen plus 60 per cent

ad valorem. On the basis of the actual imports from June 17 to November 30, 1930, of all hats falling under this classification, this compound duty amounted to 142 per cent ad valorem. Under the tariff act of 1922 the rate of duty on these hats was 60 per cent, but by presidential proclamation effective March 14, 1926, on the basis of a finding of the Tariff Commission, the rate on men's sewed straw hats if valued at $9.50 or less per dozen was increased to 88 per cent.

The tariff rates not only on sewed hats, but on other hats, bodies, and hoods of straw and other materials, are shown in the following statement:

	Act of—	
	1930	1922
Hats, bonnets, and hoods, composed wholly or in chief value of straw, chip, paper,[1] grass, palm leaf, willow, osier, rattan, real horsehair, cuba bark, ramie,[2] or manila hemp, whether wholly or partly manufactured:		
Not blocked or trimmed—		
Not bleached, dyed, colored, or stained	25 per cent	35 per cent.[3]
Bleached, dyed, colored, or stained	25 cents per dozen and 25 per cent.	
Blocked or trimmed, whether or not bleached, dyed, colored, or stained.	$3.50 dozen, plus 50 per cent	50 per cent.[3]
Sewed, whether or not blocked, trimmed, bleached, dyed, colored, or stained.	$4 dozen, plus 60 per cent	60 or 88 per cent.[4]
Any of the foregoing known as harvest hats, valued at less than $3 per dozen.	25 per cent	25 per cent.

[1] Dutiable as manufactures of paper n. s. p. f. in act of 1922 at 35 per cent.
[2] Dutiable in 1922 act as manufactures of ramie hat braids at 40 per cent or as wearing apparel composed wholly or in chief value of vegetable fiber other than cotton at 35 per cent.
[3] If made of braids, etc., if not made of braids, dutiable according to component material of chief value.
[4] 88 per cent on "men's sewed straw hats valued at $9.50 or less per dozen" by presidential proclamation, effective Mar. 14, 1926, under sec. 315.

DOMESTIC PRODUCTION

Domestic production of men's straw hats was not shown separately in census statistics prior to 1927. Data for the years 1927 and 1929 are given in Table 1.

TABLE 1.—*Men's straw hats: Production, by kind, quantity, and value, 1929 and 1927*

	1929[1]	1927
Men's straw hats, made in all industries, aggregate value	$20,707,076	$26,652,153
Made in the men's straw-hat industry	18,262,906	21,249,247
Made as secondary products in other industries	2,444,170	5,402,906
Sewed-braid hats:		
Total dozens	657 026	705,314
Total value	$11,441,439	$13,565,679
Unit value per dozen	$17.41	$19.23
Woven-body hats (except harvest hats):		
Dozens	135,182	315,277
Value	$4,850,152	$8,899,717
Unit value per dozen	$35.88	$28.23
Harvest hats:		
Dozens	[2] 1,367,403	[2] 1,341,058
Value	[2] $4,415,485	[2] $4,186,757
Unit value per dozen	$3.23	$3.12

[1] Preliminary figures, subject to revision.
[2] The figures include data for women's harvest hats as follows: For 1929, 164,734 dozens, valued at $633,969; for 1927, 138,939 dozens, valued at $395,099.

The values per dozen shown in Table 1 are for all men's straw hats, and therefore include low, medium, and high priced hats, made of sennit, milan, and other braids, whereas the cost data shown later cover only low and medium priced hats made of sennit braid. The values given in Table 1, therefore, are not comparable with the cost as found by the commission.

IMPORTS

Since the President's proclamation changing the rate of duty from 60 to 88 per cent on men's sewed straw hats valued at $9.50 or less per dozen, effective March 14, 1926, imports of sewed hats have been recorded under two classifications, namely, "Men's sewed straw hats valued at not over $9.50 per dozen" dutiable at 88 per cent, and "other sewed hats" dutiable at 60 per cent.

Imports entered under these classifications are shown in the following table. Imports at the 60 per cent rate include not only women's hats made of straw, but men's and women's sewed hats, composed wholly or in chief value of chip, grass, or any other material specified in paragraph 1406 of the tariff act of 1922. This classification covers also men's sewed straw hats, valued at more than $9.50 per dozen.

TABLE 2.—*Sewed hats of straw and other materials: Imports for consumption*

	1928			1929			1930 [1]		
	Quantity	Value	Value per dozen	Quantity	Value	Value per dozen	Quantity	Value	Value per dozen
Men's sewed straw hats, valued at not over $9.50 per dozen, dutiable at 88 per cent, total	*Dozen* 83,832	$338,048	$4.03	*Dozen* 153,010	$655,285	$4.28	*Dozen* 30,908	$128,917	$4.17
From Italy	82,073	329,312	4.01	150,626	644,289	4.28	27,904	115,204	4.13
Sewed hats, n.e.s., dutiable at 60 per cent, total	150,684	717,732	4.76	444,926	1,605,622	3.61	71,480	317,084	4.44
From—									
Italy	137,660	558,237	4.06	424,860	1,437,372	3.38	62,016	206,102	3.32
France	4,991	63,370	12.70	7,424	70,365	9.48	4,076	50,890	12.49
Switzerland	488	4,291	8.79	4,448	22,898	5.15	3,154	18,073	5.73
United Kingdom	5,908	84,262	14.26	64.788	61.907	12.93	2,334	36,764	15.75

[1] Jan. 1–June 17.

Source: Department of Commerce statistics.

PRINCIPAL COMPETING COUNTRY

The foregoing import table shows that in the calendar year 1929, Italy supplied 98 per cent of the imports of men's sewed straw hats valued at not over $9.50 per dozen, and 95 per cent of other sewed hats, and is therefore the principal competing country.

EXPORTS

The exports of straw hats from the United States are small. The statistical classification includes as one item hats for both men and women, of straw and all other similar materials, whether woven or sewed. The commission found that the exports in fact consist principally of harvest hats, and that exports of men's sewed hats of sennit types were negligible. Total exports of all classes in 1929 amounted to 78,701 dozens valued at $576,602.

BASIS OF COST COMPARISON

Of the classes of hats covered by paragraph 1504 (b) the most important, both in domestic production and in imports, is that covered by subparagraph (4), namely, sewed hats. For this and other reasons the cost investigation was confined to hats under this subparagraph.

In the commission's investigation it was found that the imported hats falling under subparagraphs 1504 (b) (1), (2), and (5), consist of hat bodies, that is, hats in the rough, unblocked and untrimmed. There is no important domestic production of these unfinished hats. These imported hat bodies are used as material by domestic manufacturers, who block and trim them after importation. The commission therefore did not include hats under these three subparagraphs in its cost investigation.

The hats covered by paragraph 1504 (b) (3) include such types as leghorn, yeddo, and Panama hats. The commission found it uncertain whether the domestic and the imported finished hats falling under this subparagraph were like or similar for the purposes of cost comparison. The imports consist in part of unfinished hats—that is, bodies or shells of the leghorn, yeddo, and other types. These are not produced in the United States, either for sale as such or otherwise, the domestic manufacturers producing finished hats of these types exclusively from imported bodies. For these reasons hats covered by bracket 1504 (b) (3) have not been included in the cost investigation.

In the case of hats dutiable under paragraph 1504 (b) (4), consisting of sewed hats of straw and other materials, it was found that the most important class, both in domestic production and in imports, consisted of sennit straw hats, made by sewing from sennit braid. There have recently been large importations also of chip hats, but these were not produced in the United States in commercial quantities during the straw-hat season of 1929. The cost comparison was therefore confined to sennit straw hats.

In the case of sennit hats, the commission found that those of staple grades—that is, of low or medium price, constituted the great bulk of the consumption. It was found impracticable to establish comparability between domestic and imported hats of the higher-priced range. Such hats are largely sold on the basis of the reputation of the individual manufacturer, and competition is less dependent on relative costs. The cost comparisons were therefore limited to sennit hats of the staple grades.

There are three major varieties of sennit hats, namely, split, improved, and flatfoot. Costs were obtained for these three classes separately.

The cost comparison was based on 10 samples of imported sennit hats and 20 samples of domestic hats. For purposes of accurate cost comparisons, there were eliminated both from the domestic and foreign cost data the variable costs of the material used in trimming hats, such as ribbon, leather, and lining fabrics. The elimination of the cost of these trimming materials would not materially affect the difference in costs for identically trimmed foreign and domestic hats. The labor and other expenses in applying the trimming materials have been retained in the cost comparison.

COST DATA

The domestic costs were obtained from seven manufacturers, who produced the bulk of men's sennit hats of staple grades.

Data for imported hats were obtained from five importers, who together handled the bulk of the imports of hats of the types under comparison. The costs of production as defined in section 336 (h) (4) of the tariff act, in the principal competing country were not readily ascertainable. The commission therefore secured invoice prices of the imported hats. It also secured, however, the price schedule of the Italian straw hat cartel, which schedule distinguished the various major factors entering into price. Among other items one was shown to cover profit. This figure was deducted from the invoice prices, but the commission thereupon added to the invoice prices as thus adjusted an estimated item for imputed interest on capital invested corresponding to the similar item included in the domestic costs.

PRINCIPAL MARKET AND TRANSPORTATION

The retail market for straw hats is distributed throughout the United States. New York City is the largest retail market, as well as the most important wholesale distributing center for domestic and imported hats. Owing to the fact that the domestic manufacture of straw hats is conducted on or close to the north Atlantic seaboard, and that imports are entered principally through the New York customs district, there is very little difference between the domestic and the imported hats as regards the cost of transportation, within the United States. The cost of transportation from each domestic producing center to New York City has been ascertained and an average has been computed. The costs of transportation from Italy, and other costs incident to delivery to New York City, have also been ascertained.

SUMMARY OF COST COMPARISON

Table 3 gives a summary of the comparison of costs of domestic and foreign sennit hats. For convenience the ratio of the differences in cost to the dutiable value of the several classes of hats is computed. There is also shown the ad valorem equivalent of the compound duty of $3 per dozen and 50 per cent found by the commission to be necessary to equalize the difference in costs for hats falling under paragraph 1504 (b) (4) considered as a whole.

TABLE 3.—*Summary cost comparison of domestic and foreign sennit straw hats*

	Split	Improved	Flatfoot
Domestic product:	*Per dozen*	*Per dozen*	*Per dozen*
Weighted average cost of production	$9.05	$11.41	$11.07
Transportation to New York City	.17	.16	.13
Total	9.22	11.57	11.20
Foreign product:			
Weighted average adjusted invoice price in foreign country	3.15	3.73	4.17
Transportation and delivery to New York City	1.07	1.12	1.10
Total	4.22	4.85	5.27
Excess of domestic over foreign costs	5.00	6.72	5.93
Dutiable value	4.06	5.31	5.95
Excess of domestic over foreign costs, ratio to dutiable value, per cent	123	126½	100
Ad valorem equivalent of a compound duty of $3 per dozen plus 50 per cent ad valorem	124	106	100

DECREASING RATES OF DUTY ON HATS, BONNETS, AND HOODS

By the President of the United States of America

A PROCLAMATION

Whereas, under and by virtue of section 336 of Title III, Part II, of the act of Congress approved June 17, 1930, entitled "An act to provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, to protect American labor, and for other purposes", the United States Tariff Commission has investigated the differences in costs of production of, and all other facts and conditions enumerated in said section with respect to, hats, bonnets, and hoods, wholly or partly manufactured, described in paragraph 1504 (b) of Title I of said act, being wholly or in part the growth or product of the United States and of and with respect to like or similar articles wholly or in part the growth or product of the principal competing country;

Whereas in the course of said investigation a hearing was held, of which reasonable public notice was given and at which parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard;

Whereas the commission has reported to the President the result of said investigation and its findings with respect to such difference in costs of production;

Whereas the commission has found it shown by said investigation that the principal competing country is Italy, and that the duties expressly fixed by statue do not equalize the difference in the costs of production of the domestic articles and the like or similar foreign articles when produced in said principal competing country, and has specified in its report the decreases in the rates of duty expressly fixed by statute found by the commission to be shown by said investigation to be necessary to equalize such difference;

And whereas in the judgment of the President such rates of duty are shown by such investigation of the Tariff Commission to be necessary to equalize such difference in costs of production.

Now, therefore, I, Herbert Hoover, President of the United States of America, do hereby approve and proclaim decreases in the rates of duty expressly fixed in paragraph 1504 (b) (4) of Title I of said act on hats, bonnets, and hoods, composed wholly or in chief value of straw, chip, paper, grass, palm leaf, willow, osier, rattan, real horsehair, cuba bark, ramie, or manila hemp, whether wholly or partly manufactured, if sewed (whether or not blocked, trimmed, bleached, dyed, colored, or stained), from $4 per dozen and 60 per cent ad valorem to $3 per dozen and 50 per cent ad valorem, the rates found to be shown by said investigation to be necessary to equalize such difference in costs of production.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington this 5th day of February in the year of our Lord one thousand nine hundred and thirty-one, and of the Independence of the United States of America the one hundred and fifty-fifth.

HERBERT HOOVER.

[SEAL.]

By the President:

HENRY L. STIMSON,

Secretary of State.

O

UNITED STATES TARIFF COMMISSION

MAPLE SUGAR AND MAPLE SIRUP

REPORT TO THE PRESIDENT

ON THE

DIFFERENCES IN COSTS OF PRODUCTION OF MAPLE SUGAR AND MAPLE SIRUP IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

WITH APPENDIX
PROCLAMATION BY THE PRESIDENT

REPORT No. 9
SECOND SERIES

Reprinted for the United States Tariff Commission from Senate Document 269
71st Congress, 3d Session

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337
U.S. Tariff Comm.
no. 9

CONTENTS

	Page
Letter of transmittal	v
Findings of the commission	3
Conclusion	4
Summary of information obtained in the commission's investigation:	
History of the investigation	5
Production, United States and Canada	5
Exports	6
Imports	6
Grade and competitive character of imports	7
Organization of the industry	7
Gifts and loans to the maple products industry by the government of Quebec	8
Cost investigation:	
Changes since 1925 in factors affecting costs	9
Adjustment in the cost data for 1925	9
Proportion of production covered by the cost inquiry in 1925	9
Areas covered in cost inquiry	10
Farm cost of production of maple sirup, exclusive of containers	10
Wholesale container cost for maple sirup	10
Transportation costs of maple sirup	11
Farm cost of production of maple sugar, exclusive of containers	11
Transportation costs of maple sugar	12
Container costs	12
Proclamation by the President	12

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, February 2, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the report of investigation made by the United States Tariff Commission of differences in costs of production in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, of * * * maple sugar and maple sirup.

Each of these reports is accompanied by a summary of information obtained by the commission in the particular investigation.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

The PRESIDENT,
The White House.

MAPLE SUGAR AND MAPLE SIRUP

RESULTS OF AN INVESTIGATION OF THE DIFFERENCE IN COSTS OF PRODUCTION OF MAPLE SUGAR AND MAPLE SIRUP IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY FOR THE PURPOSES OF SECTION 336, TITLE III, OF THE TARIFF ACT OF 1930

MAPLE SUGAR AND MAPLE SIRUP

UNITED STATES TARIFF COMMISSION,
Washington, February 2, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of maple sugar and maple sirup in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, and the findings with respect thereto.

Upon consideration of the facts obtained in this investigation the commission finds that the present rates of duty fixed by the tariff act of 1930, namely: Maple sugar 8 cents per pound should be decreased to 6 cents per pound, and maple sirup 5½ cents per pound should be decreased to 4 cents per pound.

The commission instituted this investigation on July 11, 1930, in compliance with Senate Resolution No. 313, dated July 3, 1930. Application No. 9 was merged with this investigation. Public notice of the hearing was given on September 22, 1930. At this hearing, held in Washington, D. C., on November 12, 1930, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. Under the tariff act of 1922, which imposed the same specific rate of duty (4 cents per pound) upon maple sirup as upon maple sugar, competition was mainly in maple sugar. The importation of maple sugar is large in comparison with domestic production, while the importation of sirup is relatively small. Taking the two products together, the imports during the five years 1924–1928 have averaged about 13.6 per cent of the apparent domestic consumption. The proportion of imports to consumption has tended to increase somewhat.

The cost data relating to the year 1925 with such adjustments as this investigation disclosed to be necessary are representative of costs of production for the purposes of this investigation.

2. Canada is the principal competing country for both maple sugar and maple sirup.

3. The maple sugar and the maple sirup produced in Canada and imported into the United States are like or similar to domestic maple sugar and maple sirup.

4. Costs of production ascertained in accordance with section 336:

(A) The weighted average farm cost of production of maple sirup exclusive of containers and interest on the grove, for the purposes of this investigation, is 13.4 cents per pound in the United States and 9.6 cents per pound in Canada. The weighted average farm cost of sugar, exclusive of containers and interest on the grove, for the purposes of this investigation, is 22 cents per pound in the United States and 15.8 cents per pound in Canada.

(B) Maple sirup, foreign and domestic, is packed in similar containers and distributed to approximately the same markets in the United States. Maple sugar containers differ somewhat as between the various producing areas but similar types of containers cost approximately the same in the States and Canada. Foreign and domestic maple sugar is distributed to approximately the same domestic markets which are widely scattered. The commission finds no difference in the cost of containers, transportation, or other delivery costs to a principal market or markets, for domestic and imported maple sirup and sugar.

(C) *Other relevant factors.*—The Government of the Province of Quebec has made gifts and loans at less than the usual rate of interest, to La Société des Producteurs du Sucre d'érable de Québec for the construction and equipment of a maple products plant. In addition, that government has offered to loan, without interest, to individual members of the association an amount not exceeding 50 per cent of the cost of new equipment purchased by them. Only about 150 of the more than 2,000 farmers eligible for the loan have accepted it. No part of the gifts and loans is used to increase the price paid to the farmers for maple products except as they enable the operators of the Plessisville plant to turn out a product which will command a better price in the open market. The only measurable effect on costs is the annual saving in interest, which, spread over the total production of maple sirup and maple sugar is negligible. The commission finds no difference in costs as the result of other relevant factors.

Conclusion

The commission finds it shown by the investigation (*a*) that the duties of 5½ cents per pound on maple sirup and 8 cents per pound on maple sugar do not equalize the differences in the costs of production in the United States of the said domestic articles and of the like or similar foreign articles produced in the principal competing country; (*b*) that a decrease in the rate of 1½ cents per pound on maple sirup and a decrease in the rate of 2 cents per pound on maple sugar are necessary to equalize these differences; and (*c*) that the rates of duty necessary to equalize said differences are 4 cents per pound on maple sirup and 6 cents per pound on maple sugar.

Appended to this statement of findings is a summary of information obtained in the investigation.

Respectfully submitted.

Thomas Walker Page,
Vice Chairman.
John Lee Coulter,
Edgar B. Brossard,
Lincoln Dixon,
Commissioners.

Chairman Fletcher and Commissioner Dennis, although present at the public hearing, did not thereafter participate in this investigation.

Summary of Information Obtained in the Investigation with Respect to Maple Sirup and Maple Sugar

HISTORY OF THE INVESTIGATION

The commission instituted this investigation in compliance with Senate Resolution No. 313, dated July 3, 1930.

Public notice of the investigation and of the public hearing was given by posting in the Washington and New York offices of the commission and by publication in Treasury Decisions and Commerce Reports.

A public hearing, at which all parties interested were given the opportunity to be heard, was held at the office of the commission, in Washington, November 12, 1930.

Under the general powers of the commission, an investigation of maple sirup and maple sugar was made in 1925 and 1926 and cost data were obtained for the 1925 maple season from representative farm producers in both the United States and Canada. The data obtained in that investigation were used as a basis of a report to the President transmitted April 23, 1928, under section 315 of the tariff act of 1922. That report, particularly the cost data contained therein, together with information obtained by field work in the producing sections of the United States and Canada, in October, 1930, and by means of the public hearing, forms the basis of the present conclusions. The field investigation recently made was concerned primarily with determining what changes, if any, had occurred in the maple products industry since 1925. The information obtained indicated that no important changes affecting costs of production have occurred since 1925, but disclosed the necessity of making certain adjustments in the data for 1925 with respect to interest on the value of the sugar grove and the "weighting" of costs for certain areas.

Rates of duty

	Maple sirup	Maple sugar
Act of 1922	4 cents per pound	4 cents per pound.
Act of 1930	5½ cents per pound	8 cents per pound.

PRODUCTION, UNITED STATES AND CANADA

The United States and Canada produce almost the entire world supply of maple sirup and sugar. Table I shows for both countries the farm production of maple sirup and maple sugar and the combined production of both sirup and sugar in terms of sugar for specified years. As a large part of the farm production of sirup is sold to dealers who make it into sugar in factories, the figures given in the table overstate the quantity of sirup finally put on the market and similarly understate the quantity of sugar.

TABLE 1.—*Farm production of maple sugar and maple sirup in the United States and Canada, 1921–1930*

	Maple sugar produced on farms (pounds)		Maple sirup produced on farms (gallons)		Total in terms of sugar (pounds)	
	United States [1]	Canada [2]	United States [1]	Canada [2 3]	United States	Canada
1921	4,730,000	12,286,000	2,386,000	1,651,000	23,818,000	25,492,000
1924	4,078,000	9,385,000	3,903,000	2,365,000	35,302,000	28,304,000
1925	3,236,000	10,496,000	3,089,000	2,007,000	27,948,000	26,548,000
1926	3,569,000	7,137,000	3,737,000	2,096,000	33,465,000	23,904,000
1927	3,133,000	9,832,000	3,671,000	2,586,000	32,501,000	30,517,000
1928	2,317,000	13,798,000	3,007,000	2,024,000	26,373,000	29,989,000
1929 [4]	1,706,000	11,699,000	2,595,000	2,609,000	22,468,000	32,570,000
1930 [5]	2,588,000	8,208,000	2,977,000	2,622,000	26,404,000	29,188,000

[1] From Yearbooks, United States Department of Agriculture.
[2] From Canadian Yearbooks.
[3] Converted into United States gallons.
[4] Preliminary.
[5] Canadian figures from Foodstuffs 'Round the World, July 18, 1930, and United States figures by telephone from Bureau of Agricultural Economics, Department of Agriculture.

The maple products industry in the United States is scattered over many States, but is of commercial importance mainly in Vermont, New York, and Ohio, in which States over 70 per cent of the domestic production is made. In Canada over 70 per cent of production is in the Province of Quebec.

EXPORTS

Exports of maple products from the United States are negligible. In the official statistics these products are not reported separately, but are included with other sugars and sirups.

IMPORTS

Practically the entire importation of maple sirup and maple sugar comes from Canada, mainly from the Province of Quebec. Table 2 shows the trend of imports since 1923. It also shows the duty collected, value per pound, and the equivalent ad valorem rates of duty. In studying the trend of imports, as shown in the following table, it may be noted that the increase in quantities imported during 1929 and 1930 was possibly due in part to increased shipments made in anticipation of changed rates of duty under the act of 1930.

TABLE 2.—*Imports of maple products into the United States, 1923–1930*

Year	Quantity	Value	Duty collected	Value per pound	Computed ad valorem rate
Maple sugar:	*Pounds*				*Per cent*
1923	1,995,836	$403,156	$79,833	$0.202	19.80
1924	3,910,774	591,993	156,431	.151	26.42
1925	3,446,456	494,345	137,858	.143	27.89
1926	3,886,471	577,718	155,459	.149	26.91
1927	5,533,252	894,723	221,330	.162	24.74
1928	6,954,530	1,186,077	278,181	.171	23.45
1929	12,223,319	2,250,488	488,933	.184	21.73
1930 (Jan. 1 to June 17)	9,687,265	1,964,230	387,491	.203	19.73
1930 (June 18 to Sept. 30)	22,435	3,072	1,795	.137	58.43
Maple sirup:					
1923	102,615	19,169	4,105	.187	21.41
1924	60,650	10,335	2,426	.170	23.47
1925	113,448	15,391	4,538	.136	29.48
1926	203,289	27,098	8,132	.133	30.01
1927	175,114	31,009	7,005	.177	22.59
1928	398,644	53,111	15,946	.133	30.02
1929	180,550	29,451	7,222	.163	24.52
1930 (Jan. 1 to June 17)	1,542,230	172,649	61,689	.112	35.73
1930 (June 18 to Sept. 30)	9,341	1,425	514	.153	36.07

Except in 1930, the imports of sirup have always been small, partly due to the fact that under the act of 1922 sirup and sugar were dutiable at the same rate, 4 cents per pound. The large imports in 1930 occurred just before the increased duty provided in the tariff act of 1930 became effective on June 18. They consisted of sirup which the exporters had been unable to have converted into sugar in time to be entered under the 4-cent per pound duty provided for in the act of 1922.

GRADE AND COMPETITIVE CHARACTER OF IMPORTS

In general, the maple sugar imported from Canada is of two types—sugar produced on farms in the Beauce region of Quebec and sugar made in factories. Beauce sugar is usually dark brown, almost black, in color, and comes in large irregular shaped hard blocks which are packed in bags. Factory sugar, being made from sirups blended to specifications, is of uniform grade and is molded into wooden boxes. Beauce sugar goes mainly to makers of blended sirups, who prefer it because of its strong flavor. Factory-made sugar is also used by makers of blended sirups, but goes mainly to the tobacco industry, which uses it as a sweetening in the manufacture of cigarettes and other products. The proportion of imports consisting of factory sugar has been steadily increasing. Even in the Beauce region of Canada much of the sirup is now being sold as such to the factories, where it is made into sugar.

Factory-made Canadian sugar is similar to domestic factory-made sugar, and the two are directly competitive. Canadian farm-made sugar is similar to domestic farm-made sugar, with the exception of the so-called Beauce sugar of Canada, which has certain peculiar characteristics as to color, strength, and hardness but which is nevertheless competitive with domestic sugar.

ORGANIZATION OF THE INDUSTRY

Formerly both maple sirup and maple sugar were produced entirely on farms. The demand by commercial consumers for maple sugar of more uniform grade started a development in the industry which has largely removed the conversion of sirup to sugar, for commercial uses, from the farms to factories. In the United States this development is nearly complete, and in Canada it is progressing rapidly. Factories in the United States are owned and operated almost exclusively by independent dealers; in Canada independent dealers are operating also, but, under Government supervision a strong cooperative organization is being established. At the present time farm-made sugar in the United States is sold principally at retail through the mail and locally by the farmers. The same is true of some sections of Canada, but in the sections where the so-called Beauce sugar is made, large quantities of farm-made sugar are still sold at wholesale.

In both countries the bulk of the sirup is sold at wholesale by the farmers, largely to the factories where it is converted into sugar. Some of the better quality sirup is still retailed by the farmers in both countries.

GIFTS AND LOANS TO THE MAPLE PRODUCTS INDUSTRY BY THE GOVERNMENT OF QUEBEC

For many years the Government of the Province of Quebec has sought to improve the methods of producing and marketing maple sirup and maple sugar in that Province. Its methods have usually been educative, but in recent years it has tried to get at the problem more directly by stimulating cooperative production. In order to do so, it has made the following donations and loans to La Société des Producteurs du Sucre d'Érable de Québec and through the society to some of its members.

1. Donations amounting to $22,500 for use in the erection of manufacturing and distributing plants by the cooperative association. Of this amount, $5,000 was given in 1926, $5,000 in 1927, $4,122.50 in December, 1929, and $8,377.50 in January, 1930. The donations in 1926 and 1927 were applied toward building and equipping a manufacturing and distributing plant at Plessisville, the 1929 and 1930 donations toward building and equipping a branch plant now under construction at Valley Junction.

2. Loans totaling $38,441.46 for use in building and equipping the Plessisville cooperative plant. Of this amount, $4,900 was loaned in 1926 without condition, $2,525 was loaned in 1929 to match an advance made by members of the cooperative, and $31,016.46 was loaned in 1929 on the condition, actually enforced, that the members of the cooperative advance an amount equal to half of the loan made by the provincial government. Interest at 5 per cent is actually being paid on these loans.

3. An offer to loan, through the cooperative without interest, to members of the cooperative association only, as much as 50 per cent of the cost of new equipment purchased by them, but in no case more than $500. It is stipulated that the loans are to be repaid in five equal annual installments. Of the 2,000 farmer members of the association, only about 150 have taken advantage of the offer and altogether they have borrowed only $27,525.32. Under the terms of the offer the borrower must agree to sell his entire production to the association and must make a cash payment of 50 per cent of the value of the equipment purchased.

The only effect of these donations and loans on the costs of the Canadian production is the saving in interest. The amount of this saving spread over the portion of the total production handled by the cooperative was as follows:

Year:	Per pound
1927	$0. 0003
1928	. 0003
1929	. 0001
1930	. 0001
1931 (based on 1930 production)	. 0003
Average for 5 years	. 0002

Spread over the total production of Quebec the saving would be insignificant.

Cost Investigation

The cost data on which the findings of the commission, in this investigation, are based are the cost data for the 1925 season, as obtained in a previous investigation with certain adjustments in the

interest on the investment and in the weighting of costs for certain areas. Before basing its conclusions on these data the commission established their representativeness for the 1930 conditions by inquiring as to what changes, if any, had taken place in the industry since 1925. For this purpose field work in the important producing areas of both countries was carried on in October, 1930.

CHANGES SINCE 1925 IN FACTORS AFFECTING COSTS

Information obtained in the recent field investigation showed:

1. The 1925 maple season was representative of normal yield per tree and normal conditions in both countries, and, therefore, a satisfactory period for determining normal cost differences.

2. No significant changes affecting the various cost items had occurred by the end of the 1930 maple season. Since the end of that season, however, farm wages are reported to have declined in both the United States and Canada, according to the best estimates obtainable, about 10 per cent in each country.

3. Since 1925 the production of sugar in factories has increased until now it probably exceeds the production on farms. In both the United States and Canada, however, there is still a large farm production of maple sugar, and for such production the cost data obtained for 1925 may be taken as representative of current conditions. Had the factory cost of converting sirup to sugar been taken into consideration the difference in costs of producing sugar in the two countries would be somewhat less than is indicated on page 11.

ADJUSTMENT IN THE COST DATA FOR 1925

Information obtained during the present investigation, including the public hearing, indicates that the figures representing the cost on investment in the sugar groves, as shown in the report on the previous investigation, were not wholly reliable. Sugar groves are not commonly bought and sold as such; therefore it is not practicable to get reliable information as to their market value for the purpose of calculating the interest upon investment. The figures which were obtained did not appear to be consistent with other elements of cost of production in the United States and in the principal competing country. In this report, therefore, the items of interest on the investment in the sugar groves in the United States and in Canada, have been omitted from the cost comparison.

There has also been a change in the Canadian cost data for 1925 because of a revision of the method of weighting three of the Canadian areas. In the previous report costs for these areas were weighted differently from the domestic areas. The discrepancy has been corrected by weighting both domestic and foreign areas by the same method.

PROPORTION OF PRODUCTION COVERED BY THE COST INQUIRY IN 1925

The commission cost data for 1925 were compiled from records of costs on 620 farms in the United States and 220 farms in Canada. The 620 domestic farms, for which cost records were obtained, produced 127,070 gallons of sirup, or 4.11 per cent of the estimated total domestic production in 1925, and 154,736 pounds of sugar, or 4.78 per cent of the estimated total domestic production. The 220 Cana-

dian farms, for which such records were obtained, produced 48,724 gallons of sirup, or 1.03 per cent of the estimated total Canadian production, and 134,495 pounds of sugar, or 1.29 per cent of the total estimated Canadian production.

AREAS COVERED IN COST INQUIRY

The cost inquiry in the United States was confined to the three States—Vermont, New York, and Ohio—which are the principal States producing maple products. In Canada four distinct production areas of the Province of Quebec were studied.

FARM COST OF PRODUCTION OF MAPLE SIRUP, EXCLUSIVE OF CONTAINERS

Table 3 compares weighted average farm costs of production of maple sirup in the United States and Canada. The United States costs are shown for Vermont, New York, and Ohio separately, with the average for those States; Canadian costs are shown separately for the Beauce section and for the other sections of Quebec with an average for Quebec as a whole.

TABLE 3.—*Maple sirup: Itemized cost of producing sirup, United States and Canada*

	Unit	United States				Canada		
		Vermont	New York	Ohio	Weighted average for three States	Beauce	Other	Weighted average for Quebec as a whole
Operating costs:								
Human labor	Gallon	$0.4593	$0.4475	$0.4132	$0.4473	$0.3122	$0.3094	$0.3097
Horse labor	do	.1631	.1716	.1646	.1668	.0794	.1136	.1104
Fuel	do	.2591	.3421	.3519	.3074	.1872	.2170	.2142
Taxes	do	.0822	.0977	.1611	.1008	.1067	.0625	.0666
Rent	do	.0252	.0482	.0429	.0374	---	.0057	.0052
Repairs and depreciation	do	.2163	.1818	.2359	.2053	.2119	.1598	.1646
Other	do	.0046	.0058	.0075	.0055	---	.0004	.0004
Total operating cost without interest	do	1.2098	1.2947	1.3771	1.2705	.8974	.8684	.8711
	pound	.1100	.1177	.1252	.1155	.0816	.0789	.0792
Marketing costs:								
Human labor	Gallon	.0183	.0308	.0190	.0236	.0123	.0129	.0128
Horse labor	do	.0101	.0126	.0047	.0102	.0048	.0102	.0097
Other except containers	do	.0058	.0075	.0020	.0059	---	.0032	.0029
Total marketing cost	do	.0342	.0509	.0257	.0397	.0171	.0263	.0254
	pound	.0031	.0046	.0023	.0036	.0016	.0024	.0023
Combined operating and marketing cost without interest or containers.	Gallon	1.2440	1.3456	1.4028	1.3102	.9145	.8947	.8964
	Pound	.1131	.1223	.1275	.1191	.0832	.0813	.0815
Computed interest on sirup equipment at 6 per cent.	Gallon	.1784	.1423	.1834	.1651	.1600	.1605	.1605
	Pound	.0162	.0128	.0167	.0150	.0145	.0146	.0146
Combined operating and marketing costs with interest but without containers.	Gallon	1.4224	1.4879	1.5862	1.4751	1.0745	1.0552	1.0569
	Pound	.1293	.1351	.1442	.1341	.0977	.0959	.0961
Sales value (sirup used and sold as sirup).	Gallon	1.6547	1.7464	1.8996	1.7303	1.5311	1.3569	1.3730
	Pound	.1504	.1588	.1727	.1573	.1392	.1234	.1249

WHOLESALE CONTAINER COST FOR MAPLE SIRUP

Maple sirup, when sold wholesale, is shipped in large metal drums supplied by the purchaser. The sirup containers furnished by wholesale dealers and used in shipping maple sirup are the same type in both countries.

TRANSPORTATION COST

On any basis of computing transportation costs, the difference between the transportation cost of sirup produced in the United States and of sirup produced in Canada is so negligible that its consideration does not materially affect the differences in costs of production.

FARM COST OF PRODUCTION OF MAPLE SUGAR, EXCLUSIVE OF CONTAINERS

Table 4 compares the itemized costs of producing maple sugar in the United States and in Canada for the year 1925. Domestic costs are shown separately for Vermont and New York and for the two States taken together. No sugar costs are shown for Ohio, as little sugar is made in that State, and what is made is mainly for home consumption and for local retail sale. Canadian costs are shown separately for the Beauce section, for other sections of Quebec, and for Quebec as a whole. The costs of sirup as a raw material for sugar production and the costs of converting sirup into sugar, both stated per pound of sugar, were obtained for the States of the United States and for areas of Canada, by weighting the average unit cost on each maple-sugar-producing farm covered by the cost inquiry according to the production of sugar on that farm. The average costs for the United States as a whole and for Canada as a whole were obtained by weighting State or area averaged by the officially reported [1] sugar production of each State or area.

The sirup costs shown in Table 4 in terms of sugar were converted from per pound of sirup to per pound of sugar by taking 11 pounds of sirup as yielding 8 pounds of sugar.

TABLE 4.—*Maple sugar: Weighted average farm costs of production, exclusive of container and transportation costs, United States and Canada*

[Per pound of sugar]

Item	Unite States [a]			Canada		
	Vermont	New York	Weighted average for 2 States	Beauce	Other sections of Quebec	Weighted average for Quebec
Sirup costs: [b]						
Operating cost without interest	$0.1366	$0.1783	$0.1474	$0.1118	$0.1156	$0.1138
Interest on investment	.0221	.0282	.0236	.0200	.0227	.0214
Total operating cost	.1587	.2065	.1710	.1318	.1383	.1352
Sugar-making costs:						
Sugaring-off labor	.0087	.0184	.0112	.0041	.0061	.0051
Fuel used	.0154	.0472	.0236	.0092	.0136	.0114
Repairs and depreciation	.0041	.0029	.0038	.0010	.0024	.0017
Interest on sugar equipment	.0023	.0011	.0020	.0005	.0015	.0012
Total cost with interest	.0305	.0696	.0406	.0148	.0236	.0194
Sugar-marketing costs, exclusive of containers	.0077	.0105	.0084	.0034	.0040	.0037
Total sugar costs	.1969	.2866	.2200	.1500	.1659	.1583

[a] Ohio is omitted from sugar costs because of the small sugar production covered in this investigation.
[b] Sirup converted to sugar on the basis of 8 pounds of sugar to 11 pounds of sirup.

[1] Reported for 1925 for States of the United States in the Yearbook of the U. S. Department of Agriculture, 1925, p. 1010; reported for counties of Quebec in Census of Canada, 1921, pp. 654–661.

TRANSPORTATION COSTS

On any basis of computing transportation costs, the difference between the transportation cost of sugar produced in the United States and of sugar produced in Canada is so negligible that it is not a factor in determining the difference in cost of production.

CONTAINER COSTS

Maple sugar sold at wholesale, with the exception of Beauce sugar, is packed in wooden boxes. The prices for such boxes are practically identical in the two countries. Beauce sugar is packed in jute bags. Container costs have not been included in the production cost of sugar for the reason that there is no important difference in the cost of similar containers of any type in the two countries.

DECREASING RATES OF DUTY ON MAPLE SUGAR AND MAPLE SIRUP

By the President of the United States of America

A PROCLAMATION

Whereas, under and by virtue of section 336 of Title III, Part II, of the act of Congress approved June 17, 1930, entitled "An act to provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, to protect American labor, and for other purposes," the United States Tariff Commission has investigated the differences in costs of production of, and all other facts and conditions enumerated in said section with respect to, maple sugar and maple sirup, being wholly or in part the growth or product of the United States and of and with respect to like or similar articles wholly or in part the growth or product of the principal competing country;

Whereas in the course of said investigation a hearing was held, of which reasonable public notice was given and at which parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard;

Whereas the commission has reported to the President the results of said investigation and its findings with respect to such differences in costs of production;

Whereas the commission has found it shown by said investigation that the principal competing country is Canada, and that the duties expressly fixed by statute do not equalize the differences in the costs of production of the domestic articles and the like or similar foreign articles when produced in said principal competing country, and has specified in its report the decreases in the rates of duty expressly fixed by statute found by the commission to be shown by said investigation to be necessary to equalize such differences;

And whereas in the judgment of the President such rates of duty are shown by such investigation of the Tariff Commission to be necessary to equalize such differences in costs of production.

Now, therefore, I, Herbert Hoover, President of the United States of America, do hereby approve and proclaim the following rates of duty found to be shown by said investigation to be necessary to equalize such differences in costs of production:

A decrease in the rate of duty expressly fixed in paragraph 503 of Title I of said act on maple sugar, from 8 cents per pound to 6 cents per pound;

And a decrease in the rate of duty expressly fixed in paragraph 503 of Title I of said act on maple sirup, from 5½ cents per pound to 4 cents per pound.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington this 5th day of February in the year of our Lord one thousand nine hundred and thirty-one, and of the Independence of the United States of America the one hundred and fifty-fifth.

[SEAL.] HERBERT HOOVER.

By the President:

HENRY L. STIMSON,
Secretary of State.

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UNITED STATES TARIFF COMMISSION

WOOL FLOOR COVERINGS
AND
ULTRAMARINE BLUE

REPORTS TO THE PRESIDENT

ON THE

DIFFERENCES IN COSTS OF PRODUCTION IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRIES, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

REPORTS Nos. 10 and 11
SECOND SERIES

Reprinted for the United States Tariff Commission from Senate Document 269
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UNITED STATES TARIFF COMMISSION

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WOOL FLOOR COVERINGS

RESULTS OF AN INVESTIGATION OF THE DIFFERENCES IN COSTS OF PRODUCTION OF WOOL FLOOR COVERINGS, NOT SPECIALLY PROVIDED FOR, IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY FOR THE PURPOSES OF SECTION 336 TITLE III, OF THE TARIFF ACT OF 1930

ULTRAMARINE BLUE

RESULTS OF AN INVESTIGATION OF THE DIFFERENCES IN COSTS OF PRODUCTION OF ULTRAMARINE BLUE IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY FOR THE PURPOSES OF SECTION 336, TITLE III, OF THE TARIFF ACT OF 1930

CONTENTS

	Page
Letter of transmittal	IX
Wool floor coverings:	
Findings of the commission	3
Conclusion	4
Ultramarine blue:	
Findings of the commission	7
Conclusion	8
Summary of information obtained in the commission's report—	
Description and scope	9
Rates of duty	9
Comparability of domestic and foreign product	9
Production, imports, and exports	10
Principal competing country	11
Domestic costs	11
Foreign costs	12
Principal market and cost of transportation	13
Comparison of domestic and foreign costs	13

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, February 2, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the reports of investigation made by the United States Tariff Commission of differences in costs of production in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, of * * * wool floor coverings, not specially provided for, and ultramarine blue.

Each of these reports is accompanied by a summary of information obtained by the commission in the particular investigation.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

THE PRESIDENT,
The White House.

WOOL FLOOR COVERINGS

RESULTS OF AN INVESTIGATION OF THE DIFFERENCES IN COSTS OF PRODUCTION OF WOOL FLOOR COVERINGS, NOT SPECIALLY PROVIDED FOR, IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY FOR THE PURPOSES OF SECTION 336 TITLE III, OF THE TARIFF ACT OF 1930

WOOL FLOOR COVERINGS NOT SPECIALLY PROVIDED FOR

UNITED STATES TARIFF COMMISSION,
Washington, February 2, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation with respect to floor coverings, wholly or in chief value of wool, not specially provided for, for the purposes of section 336 of title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation, the commission finds that the domestic articles and the foreign articles imported under paragraph 1117 (c) are not like or similar, and therefore a comparison can not be made of domestic and foreign costs of production for purposes of the law.

The commission instituted this investigation on July 11, 1930, in compliance with Senate Resolution No. 313, dated July 3, 1930.

Public notice of the hearing was given on September 22, 1930. At this hearing, held in Washington, D. C., on November 18, 1930, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. Imports of carpets and rugs dutiable under paragraph 1117 (c) of the tariff act of 1930 for the period June 18 to November 30, 1930, were 1,382,752 square feet, valued at $248,080. Statistics of domestic production of approximate similar merchandise are not available, but the amount is known to be small.

2. The articles imported under paragraph 1117 (c) of the tariff act of 1930 include (*a*) Numdah felt rugs, (*b*) druggets, (*c*) hooked rugs, (*d*) all-over embroidered rugs, and (*e*) mohair plush rugs, and also any other type not provided for eo nomine.

(*a*) Numdah felt rugs are not made in the United States.

(*b*) Druggets as such are not made in the United States. The nearest comparable domestic article is finer in texture and quality and is not sold as a "drugget."

(*c*) Hooked rugs of wool are made in this country by machine. The imported articles are handmade and are inferior in quality to the domestic.

(*d*) All-over embroidered rugs are made in small quantities in the United States. The foreign article is not similar to the domestic in weight, quality, or design and the two are not competitive on a price basis.

(*e*) Mohair plush rugs are made in the United States and a comparable article is imported. The domestic and imported rugs are sold in this country at the same price, but the domestic production and imports are negligible.

Conclusion

The commission finds it shown by the investigation that the foreign articles imported from the principal competing country are not like or similar to the domestic articles for the purposes of section 336 of the tariff act of 1930, and that no basis exists for a change in the rate of duty expressly fixed in paragraph 1117 (c) under the provisions of that section.

Respectfully submitted.

Henry P. Fletcher,
Chairman.

Thomas Walker Page,
Vice Chairman.

John Lee Coulter,
Alfred P. Dennis,
Edgar B. Brossard,
Lincoln Dixon,
Commissioners.

ULTRAMARINE BLUE

RESULTS OF AN INVESTIGATION OF THE DIFFERENCES IN COSTS OF PRODUCTION OF ULTRAMARINE BLUE IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY FOR THE PURPOSES OF SECTION 336, TITLE III, OF THE TARIFF ACT OF 1930

ULTRAMARINE BLUE

UNITED STATES TARIFF COMMISSION,
Washington, February 2, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of ultramarine blue in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation, the commission finds that the present rates of duty fixed by the tariff act of 1930, namely: 3 cents per pound, if valued at 10 cents or less per pound; and 4 cents per pound, if valued at more than 10 cents per pound, on ultramarine blue, dry, in pulp, or ground in or mixed with oil or water, wash and all other blues containing ultramarine, should not be changed.

The commission instituted this investigation on July 3, 1930, in compliance with Senate Resolution No. 309, dated June 30, 1930.

Public notice of the hearing was given on September 22, 1930. At this hearing, held in Washington, D. C., on November 6, 1930, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. Domestic production of ultramarine blue has varied from 8,366,920 pounds in 1925, to 9,107,881 pounds in 1929. Imports of ultramarine blue have varied from 960,335 pounds in 1925, to 683,149 pounds in 1929, and have supplied from 10.3 per cent to 7.0 per cent of the apparent domestic consumption. The year 1929 is a representative period for the purpose of this investigation.

2. England is the principal competing country.

3. There are many grades of ultramarine blue. The grades selling in the United States in 1929, for more than 12 cents per pound are the most important in quantity and value, both as to domestic production and imports. The grades of ultramarine blue produced in England, and selling in the United States markets in the price groups (1) from 12 cents to 16 cents per pound corresponding to the duty bracket "if valued at 10 cents or less per pound" and (2) 17 cents per pound and over, corresponding to the duty bracket "if valued at more than 10 cents per pound," are like or similar to the grades of the domestic product selling in the same price group, and these grades are taken in this report for comparing domestic and foreign costs for the purposes of section 336 of the tariff act of 1930.

4. The metropolitan New York district is the principal market in the United States for both domestic and imported ultramarine blue.

5. The cost of production as defined in section 336 (h) (4) was not readily ascertainable for ultramarine blue produced in the principal

competing country. The commission, therefore, in accordance with section 336 (e) (2) (A) accepted the weighted average of invoice prices of ultramarine blue as evidence of such cost.

6. Costs of production ascertained in accordance with section 336:

(A) The costs of production of ultramarine blue produced in the United States were $0.1214 per pound for the grades selling from 12 to 16 cents per pound and $0.1736 per pound for the grades selling for 17 cents per pound and over, for the period covered by the investigation. The corresponding costs of production in the principal competing country, as evidenced by invoice prices, were $0.0872 per pound and $0.1263 per pound, respectively.

(B) The cost of transportation and other delivery charges of ultramarine blue from the centers of domestic production to the principal market in the United States was $0.0021 per pound during 1929, and the corresponding cost from the centers of production in the principal competing country to the same market was $0.0086 per pound.

(C) No other relevant factors constituting an advantage or disadvantage in competition were disclosed in the course of the investigation.

The total cost of production of ultramarine blue in the United States, including transportation and other delivery costs to the principal market, were thus $0.1235 per pound for grades selling from 12 to 16 cents per pound and $0.1757 per pound for the grades selling at more than 17 cents per pound; the corresponding foreign costs of ultramarine blue were $0.0958 per pound and $0.1349 per pound; and the differences in such costs were $0.0277 per pound and $0.0408 per pound, respectively.

Conclusion

The commission finds it shown by the investigation (*a*) that the duties expressly fixed by statute on ultramarine blue, dry, in pulp, or ground in or mixed with oil or water, wash and all other blues containing ultramarine, namely, 3 cents per pound on said article if valued at 10 cents or less per pound, and 4 cents per pound if valued at more than 10 cents per pound, equalize the differences in the costs of production, including transportation and delivery to the principal market in the United States of the said domestic article and the like or similar foreign article produced in the principal competing country; and (*b*) that no change in the said rates is necessary to equalize these differences.

Appended to this statement of findings is a summary of information obtained in this investigation.

Respectfully submitted.

Henry P. Fletcher,
Chairman,
Thomas Walker Page,
Vice Chairman,
John Lee Coulter,
Alfred P. Dennis,
Edgar B. Brossard,
Lincoln Dixon,
Commissioners.

Summary of Information Obtained in the Investigation With Respect to Ultramarine Blue

DESCRIPTION AND SCOPE

Ultramarine blue is a blue pigment, manufactured by heating together a mixture of china clay, soda ash, sulphur, silica, and pitch, and separating the resulting purified mass into several fractions by flotation and levigation. Wash blues are ultramarine blues of medium quality, frequently mixed with other materials and used to neutralize the yellow tint in laundering. Ultramarine blues, ground in or mixed with oil or water, are as described; these forms are neither generally manufactured by domestic producers of ultramarine blue nor imported. The costs as obtained may be taken as representative of all grades of ultramarine blue and wash blue.

RATES OF DUTY

The present rate of duty fixed by the tariff act of 1930 on ultramarine blue, in all forms, is 3 cents per pound if valued (foreign value) at 10 cents per pound or less, and 4 cents per pound if valued at more than 10 cents per pound. Under the act of 1922 the rate was 3 cents per pound, regardless of value. Under the act of 1913, ultramarine blue was dutiable at 15 per cent ad valorem.

COMPARABILITY OF DOMESTIC AND FOREIGN PRODUCT

The fact that the duty fixed by law is different on ultramarine blue valued at 10 cents or less per pound, and on that valued at more than 10 cents per pound, makes it necessary in a cost comparison to distinguish classes corresponding to these duties.

The duty brackets are based on foreign values. The commission found by inquiry from the principal importers that the imported product valued in the foreign country at 10 cents or less per pound was sold in 1929 by them in the United States at less than 17 cents per pound, and that imported ultramarine blue falling under the higher duty bracket was sold at 17 cents or more per pound. This evidence is confirmed by the fact that whereas approximately 45 per cent of the imports from England during the period covered by the investigation were valued at 10 cents or less per pound (foreign value), about 47 per cent of these imports were sold in the United States at a price of less than 17 cents per pound and 53 per cent at a price of 17 cents or more.

Ultramarine blue is marketed in a large number of grades without definitely standardized specifications. Each manufacturer produces many grades by blending varying proportions of the fractional separations of the processed blue. Sales are made under an elaborate system of code numbers. Grades are often produced to meet the consumers' specifications or to match samples of former shipments. The value of a given grade depends on the concentration of the blue coloring matter and on the fineness of the particles.

A detailed physical comparison of samples of the domestic product with samples of the imported product is impracticable. The commission found, however, that the imports of ultramarine blue entered under the lower duty bracket (foreign value, 10 cents or less per

pound), taken as a group, were substantially like and similar to the domestic grades selling at a price range of from 12 to 16 cents per pound, taken as a group. Similarly, it found the imports under the higher group duty bracket, taken as a group, to be substantially like or similar to the domestic production of grades selling at 17 cents per pound or more. About 30 per cent of the output of ultramarine blue produced in the United States is necessarily low-grade material selling at less than 12 cents per pound. This is sold below the average cost of production per pound of the product as a whole. There is no importation of ultramarine blue of these lower grades. It is claimed (minutes of public hearing, p. 37) that the principal foreign producer has the same difficulty in disposing of the inferior portion of his product as is encountered by the domestic producers.

For the reasons given, the commission's cost comparison used as a basis for this report, is made between the average domestic and the average foreign cost (*a*) of the product selling in the United States market at from 12 to 16 cents per pound, and (b) of the product so selling at 17 cents or more per pound. These two groups are designated in Table 4 as Nos. 3 and 4, respectively. Domestic costs were also obtained for ultramarine blue of two lower price groups designated as Nos. 1 and 2, respectively, but there is no way of comparing these with foreign costs.

PRODUCTION, IMPORTS, AND EXPORTS

Table 1 shows the production of ultramarine blue as reported by the Bureau of the Census. Table 2 shows imports for consumption.

TABLE 1.—*Ultramarine blue: Domestic production, 1923–1929*

Year	Quantity	Value	Unit value
	Pounds		
1923	7,064,134	$1,087,547	$0.154
1925	8,366,920	1,226,696	.146
1927	8,347,893	1,187,035	.142
1929 [1]	9,107,881	1,313,885	.144

[1] Preliminary figures.

TABLE 2.—*Ultramarine blue: Imports for consumption, 1925–1930*

Year	Quantity	Value	Unit value
	Pounds		
1925	960,335	$143,596	$0.149
1926	869,528	118,562	.136
1927	916,964	113,662	.124
1928	934,210	113,049	.121
1929	683,149	81,285	.119
1930 (Jan. 1–Aug. 31)	602,862	69,898	.117

Exports of ultramarine blue are not separately shown in official statistics, but are known to be small, to consist of wash blue, and the low grades, and to go principally to certain South American countries and Canada.

PRINCIPAL COMPETING COUNTRY

Table 3 shows imports by countries of origin in 1929, and is the basis for establishing England as the principal competing country.

TABLE 3.—*Ultramarine blue: Imports by countries of origin, 1929*

Country	Quantity	Value	Per cent by weight of total
	Pounds		
England	584, 556	$70, 296	85
France	47, 958	5, 852	7
Belgium	39, 651	3, 723	6
Germany	6, 500	1, 078	1
Netherlands	4, 484	336	1
Total	683, 149	81, 285	100

DOMESTIC COSTS

There are five domestic producers of ultramarine blue, located in West Virginia, New Jersey, New York, Ohio, and Indiana. All five of these producers were costed by the commission's representatives. The data obtained from each producer included the cost of production per pound of the aggregate production of all grades, and a segregation of the total sales by pounds and value during the cost period into the following price groups: (1) Up to 8 cents per pound, (2) 9–11 cents per pound, (3) 12–16 cents per pound, and (4) 17 cents and over per pound. The aggregate cost of production of each company was apportioned to the production corresponding to each of the price groups on the basis of the sales in the respective groups. Obviously, under this method, each price group bears a portion of the total cost burden in direct proportion to the value of sales in the respective group. The method applied in apportioning the total cost to the price groups is as follows:

(1) The total sales were segregated by pounds and value into the four price groups, and the percentage by value of the total of each group determined.

(2) The total cost (dollars expended) was divided into the four groups on the basis of the above percentages.

(3) The percentage by weight of the total pounds sold in each price group was obtained.

(4) The total production in pounds was divided into the four price groups on the basis of this percentage ratio.

Steps (3) and (4) are a necessary departure from the usual method of sales allocation because production by price groups was not known.

(5) The cost (dollars expended) in each group was divided by the calculated pounds of production in each group to determine the cost per pound of each group, in both the total cost and in the detailed elements of costs.

TABLE 4.—*Ultramarine blue: Weighted average domestic cost of production by cost items, allocated in price groups, per pound*

Price groups		Total	No. 1	No. 2	No. 3	No. 4
Per cent of total production		100	17.34	8.43	33.72	40.51
Items of cost	Per cent total cost of production	Weighted average cost of 5 companies	Up to 8 cents	9 to 11 cents	12 to 16 cents	17 cents and up
Raw material	23.81	$0.0300	$0.0129	$0.0223	$0.0298	$0.0391
Direct labor	19.92	.0251	.0116	.0168	.0228	.0346
Indirect labor	6.75	.0085	.0028	.0069	.0095	.0103
Fuel for heating and drying	4.60	.0058	.0029	.0039	.0050	.0080
Water for processing	.56	.0007	.0001	.0005	.0008	.0009
Manufacturing supplies	3.17	.0040	.0011	.0028	.0040	.0054
Depreciation:						
Buildings	2.06	.0026	.0012	.0020	.0022	.0035
Equipment	3.09	.0039	.0019	.0026	.0035	.0052
Repairs and maintenance	5.08	.0064	.0033	.0043	.0056	.0088
Insurance:						
Fire	.56	.0007	.0003	.0004	.0007	.0009
Liability	.56	.0007	.0003	.0004	.0006	.0009
Taxes	1.67	.0021	.0010	.0012	.0018	.0029
Heat, light, and power	3.57	.0045	.0020	.0035	.0042	.0059
General factory expense	3.17	.0040	.0027	.0034	.0033	.0063
General administrative expense	9.13	.0115	.0034	.0077	.0117	.0156
Packing material	8.49	.0107	.0050	.0068	.0091	.0152
Weighted average cost of production	96.19	.1212	.0525	.0855	.1146	.1635
Interest on investment	3.81	.0074	.0031	.0052	.0068	.1010
Weighted average cost per pound, f. o. b. plant	100.00	.1286	.0556	.0907	.1214	.1736

FOREIGN COSTS

The cost of production of ultramarine blue, as defined in section 336 (h) (4), was not readily ascertainable for England, the principal competing country. The commission therefore, as authorized by law, accepted the weighted average of invoice prices of the imported product as evidence of said cost. Since 90 per cent of the total imports in 1929 were entered through the New York and Ohio customs districts, invoices of imports through these districts are considered representative. The commission's representatives obtained, from the four importers in New York City who entered ultramarine for sale, their sales during 1929 distributed according to the same price groups (based on price of sales in the United States) as were used for the domestic product. The invoice value, f. o. b. foreign port of shipment, of the total imports of each of these importers was apportioned among the several price groups on the basis of the importer's sales in the respective groups. Two large importers enter ultramarine blue for use in their own products. The invoice values of these imports are not included in this investigation since the product is not directly sold, and no price grouping is possible. Table 5 summarizes the invoice values of imports for direct sale, apportioned into the price groups.

TABLE 5.—*Ultramarine blue: Summary of weighted average invoice values of imports for sale, allocated in price groups, per pound*

Price group	Total weighted average of four importers	Group 1, up to 8 cents	Group 2, 9–11 cents	Group 3, 12–16 cents	Group 4, 17 cents and over
Per cent of total sold imports	100	----------	0.18	47.00	52.82
Weighted average unit value of sales	$0.1822	----------	$0.1080	$0.1474	$0.2134
Weighted average invoice value, f. o. b. foreign port	.1078	----------	.0658	.0872	.1263
Add transportation charges to New York City	.0086	----------	.0086	.0086	.0086
Weighted average invoice values, c. i. f. New York City	.1164	----------	.0744	.0958	.1349

PRINCIPAL MARKET AND COST OF TRANSPORTATION

Table 6 shows that metropolitan New York is the principal market for ultramarine blue, and costs of transportation have been computed only to that market. Cost of transportation within the country is a small factor in proportion to the other costs and value of the product, and the inclusion of transportation charges to other markets would not appreciably affect the general results of the cost comparison.

TABLE 6.—*Ultramarine blue: Geographical distribution of domestic sales, and imports through New York and Ohio districts, 1929—all grades*

District	Domestic production	Imports
	Per cent of total	*Per cent of total*
Metropolitan New York	49	51
Central	21	49
Miscellaneous	30	
Total	100	100

Transportation charges on domestic sales were determined by obtaining the weighted average transportation cost applying to all sales of ultramarine blue in the New York area. Transportation charges on the imported ultramarine are ocean freight, insurance, and other fees, and are included in the c. i. f. charges to New York City.

COMPARISON OF DOMESTIC AND FOREIGN COSTS

Table 7 shows the comparative costs of ultramarine blue of price groups 3 and 4 corresponding to the respective duty brackets on ultramarine blue.

TABLE 7.—*Ultramarine blue: Comparative summary of domestic and foreign costs by price groups*

[Cents per pound]

	Group 3, 12–16 cents per pound	Group 4, 17 cents and up per pound
Domestic product:		
Weighted average cost of production	12.14	17.36
Cost of transportation to New York City	0.21	0.21
Total cost	12.35	17.57
Foreign product:		
Weighted average invoice value of imports in the foreign country	8.72	12.63
Cost of transportation and delivery to New York City	.86	.86
Total cost	9.58	13.49
Excess of domestic over foreign cost	2.77	4.08
Present rate of duty	3.00	4.00

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UNITED STATES TARIFF COMMISSION

SMOKERS' ARTICLES

PIPES, PIPE BOWLS, CIGAR AND CIGARETTE HOLDERS, AND MOUTHPIECES, FINISHED OR UNFINISHED

REPORT TO THE PRESIDENT

ON THE

DIFFERENCES IN COSTS OF PRODUCTION OF SMOKERS' ARTICLES—PIPES, PIPE BOWLS, CIGAR AND CIGARETTE HOLDERS, AND MOUTHPIECES, FINISHED OR UNFINISHED IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

REPORT No. 12

Second Series

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CONTENTS

	Page
Letter of transmittal	IV
Findings of commission	1
Conclusion	2
Summary of information:	
General—	
Description of articles	2
Rates of duty	3
History of the investigation	3
Brierwood pipes—	
Domestic production	3
Imports	3
Principal competing country	3
Exports	4
Competitive conditions	4
Domestic marketing and transportation	5
Cost of production in the United States	5
Costs of production in France—Invoice prices as evidence of	5
The year 1929 a representative period	5
Differences in costs of production	6
Pipes other than those having bowls of brier wood or root, pipe bowls, cigar and cigarette holders, and mouthpieces	6

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, March 12, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the reports of investigations made by the United States Tariff Commission of differences in costs of production in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, of * * * smokers' articles—pipes, pipe bowls, cigar and cigarette holders, and mouthpieces, finished or unfinished. All of these investigations, except that relating to edible gelatin, were made pursuant to Senate resolution.

Each of these reports is accompanied by a summary of information obtained by the commission in the particular investigation. The drafts of the proclamations in each investigation, in triplicate, are being submitted through the State Department in compliance with Executive order of November 8, 1929.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

THE PRESIDENT,
The White House.

SMOKERS' ARTICLES—PIPES, PIPE BOWLS, CIGAR AND CIGARETTE HOLDERS, AND MOUTHPIECES, FINISHED OR UNFINISHED

UNITED STATES TARIFF COMMISSION,
Washington, March 12, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of pipes, pipe bowls, cigar and cigarette holders, and mouthpieces, finished or unfinished, in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation the commission finds that the present rate of duty on tobacco pipes having bowls wholly or in chief value of brier wood or root, fixed by the tariff act of 1930; namely, 5 cents each and 60 per cent ad valorem, should not be changed.

The commission makes no findings with respect to tobacco pipes having bowls of material other than brier wood or root, pipe bowls, cigar and cigarette holders, and mouthpieces, finished or unfinished, dutiable at 5 cents each and 60 per cent ad valorem.

The commission instituted this investigation July 11, 1930, in compliance with Senate Resolution No. 313, dated July 3, 1930. Application No. 21 was merged with this investigation. Public notice of the hearing was given on September 22, 1930. At this hearing, held in Washington on November 7, 1930, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. The total number of brierwood pipes produced by five domestic companies, representing about 85 per cent of the total domestic output, decreased from 1,549,829 dozen in 1923 to 1,184,016 dozen in 1929. Imports through the ports of New York and Chicago, representing about 85 per cent of the total entered through all ports, declined from 327,185 dozen in 1925 to 171,538 dozen in 1929.

2. The year 1929 is a representative period and has been used as the cost period in this investigation.

3. France is the principal competing country.

4. The bulk of the production and of imports consists of low and medium grade pipes retailing at 25 cents, 50 cents, and $1 each. The pipes of these grades produced in France are like or similar to the same grades produced in the United States, and such pipes have been taken in this report for comparing domestic and foreign costs.

5. The metropolitan district of New York is the principal market of the United States for both domestic and imported brierwood pipes.

6. The cost of production as defined in section 336 (h) (4) was not readily ascertainable for brierwood pipes in the principal competing country. The commission, therefore, in accordance with section 336 (e) (2) (A), accepted the weighted average of invoice prices of brierwood pipes as evidence of such cost.

If the costs of the 25-cent, 50-cent, and $1 pipes, including transportation to the principal market, are averaged, the difference in costs of production is equalized by the present rate of duty. If the costs of these three grades be considered separately, the comparison for two grades shows a slight increase in the duty to be warranted, and for one grade a slight decrease to be warranted. The commission, however, finds no justification for recommending different rates of duty for various grades of brierwood pipes in this investigation.

7. The commission also made inquiry with regard to the situation concerning brierwood pipes since the enactment of the tariff act of 1930, which fixed a duty higher than that in effect in 1929. It found that by reason of the general business depression and other causes, conditions in industry, both in the United States and in the principal competing country, were so abnormal as to render cost comparisons unsatisfactory as a basis for determining the rate of duty.

CONCLUSION

The commission finds it shown by the investigation (*a*) that the duty expressly fixed by statute on tobacco pipes having bowls wholly or in chief value of brier wood or root; namely, 5 cents each and 60 per cent ad valorem, equalizes the difference in the costs of production, including transportation and delivery to the principal market in the United States, of the said domestic article and the like or similar article produced in the principal competing country; and (*b*) that no change in said rate is necessary to equalize this difference.

Appended to this statement of findings is a summary of information obtained in this investigation.

Respectfully submitted,

HENRY P. FLETCHER,
Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
JOHN LEE COULTER,
ALFRED P. DENNIS,
EDGAR B. BROSSARD,
LINCOLN DIXON,
Commissioners.

SUMMARY OF INFORMATION OBTAINED IN THE INVESTIGATION OF PIPES, PIPE BOWLS, CIGAR AND CIGARETTE HOLDERS, AND MOUTHPIECES

GENERAL

Description of the articles.—The investigation included all of the articles provided for in paragraph 1552 at 5 cents each and 60 per cent ad valorem. For the purposes of this summary, these articles are segregated into two groups:

1. Pipes having bowls of brier wood or root (commonly known as brierwood pipes).

2. Pipes other than those having bowls of brier wood or root, pipe bowls, cigar and cigarette holders, and mouthpieces.

Pipes having bowls of brier wood or root, commonly known as brierwood pipes, constitute the most important group, both from the point of view of imports and of domestic production. The bowls of these pipes are cut from brierwood blocks, all of which are imported.

Rates of duty—

Tariff act of 1930—5 cents each and 60 per cent.
Tariff act of 1922—60 per cent.
Tariff act of 1913—50 per cent.

History of the investigation.—The investigation, No. 14, was instituted on July 11, 1930, in accordance with Senate Resolution No. 313, approved July 3, 1930. Application No. 21, received on July 12, 1930 from an interested party, was merged with the investigation. Public notice of the hearing was given on September 22, 1930. At this hearing, held in Washington on November 7, 1930, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

BRIERWOOD PIPES

Domestic production.—About 85 per cent of the total domestic production of brierwood pipes is made in 5 large factories, 4 of which are located in or near New York City, and 1 in Chicago. These factories employ on the average a total of 1,200 to 1,500 workers. The value of brierwood pipes represents about 90 per cent of the total value of all articles manufactured in the five plants; the remainder consists of other pipes, pipe bowls, mouthpieces, cigar and cigarette holders, and miscellaneous smokers' articles.

The domestic output was not reported officially until 1929; in that year brierwood pipes having a total value of $4,530,464 were produced. Analysis of the records of the five large plants shows a decline in the number produced, from 1,549,829 dozen in the year 1925 to 1,184,016 dozen in 1929. About 95 per cent of the total are pipes intended for retail sale at 25 cents, 50 cents, and $1 each.

Imports.—Imports of brierwood pipes are not officially reported for 1929, the period covered by the investigation, nor for prior periods. The imports at New York and Chicago, ascertained by analysis of official and importers' records, representing about 85 per cent of the total imports of such pipes at all customs districts, amounted to 327,185 dozen, valued at $513,523, in the year 1925, and to 171,538 dozen, valued at $241,145, in 1929.

Principal competing country.—The principal foreign production center is St. Claude, France. Most of the low and medium grade brierwood pipe bowls turned out in France are completed into pipes in that country, chiefly for export. The greater part of the better-quality French bowls are exported to England for conversion into pipes which generally sell at higher prices than pipes made in other countries. Brierwood pipes are also manufactured in Italy, where the output of low and medium grades has increased in recent years, and in Germany and Czechoslovakia.

France is the principal competing country with respect to brierwood pipes of all kinds. Of the total number imported in 1925

through New York and Chicago from all sources, 126,417 dozen, or 74 per cent, were imported from that country. France is also the principal competing country for low and medium grade brierwood pipes. In 1929, of the total number imported at New York and Chicago which were declared to be designed for retail sale at $1 or less each, 124,464 dozen, or 76 per cent, came from France. Almost all of these were in the 25-cent, 50-cent, and $1 grades.

Exports.—Exports of brierwood pipes from the United States are not reported separately in the official statistics but are small.

Competitive conditions.—In the wholesale trade the various brands are chiefly classified according to the retail prices at which they are designed to sell. Almost all of the low and medium grade pipes are in the 25-cent, 50-cent, and $1 price groups. Of the brierwood pipes for which analysis was made for the year 1929, about 97 per cent of the domestic articles and 94 per cent of the imports were in these three price groups. Most of the other brierwood pipes, domestic and foreign, are higher priced articles which are distinctive and individual.

Competition between domestic and imported 25-cent pipes is not separable from competition in the 50-cent and $1 grades. The production of the low-grade article, domestic and foreign, is interdependent with the production of other grades. In cutting bowls from wood blocks, pipe manufacturers find some bowls suitable only for 25-cent pipes and some suitable for 50-cent pipes or better grades. The costs of production which are allocated to the 25-cent pipes for the bowls used therefor depend largely upon the values allocated to the bowls used for 50-cent and $1 pipes. Few, if any, firms make or sell only one grade of brierwood pipe. The 25-cent grade, domestic or imported, is generally sold to retailers only in combination with 50-cent and $1 pipes.

One grade, such as 25-cent pipes, may be sold at wholesale at a loss in an effort to effect the sale of more profitable grades. In the year 1929 the domestic cost of production of 25-cent brierwood pipes, and the landed cost of the imports of that grade, including duty, both exceeded the usual wholesale selling price therefor in the United States.

The unprofitableness of the 25-cent brierwood pipe resulted, in the latter part of the year 1930, in a discontinuance of its manufacture for the wholesale trade by the larger domestic producers. Three of the five larger producers substituted pipes having bowls of birch or hard maple for the 25-cent brierwood articles, in order to keep their lines filled. One other large domestic manufacturer continues to make 25-cent brierwood pipes, but sells them direct to chain stores, without utilizing the jobbers, at prices considerably above the former wholesale price for 25-cent articles. Under the operation of the rate of duty in the tariff act of 1930, there are apparently no imports of 25-cent brierwood pipes. It therefore has developed, since the year 1929, covered by the investigation, that 25-cent brierwood pipes no longer compete in domestic wholesale markets.

The apparent decreases in both domestic production and imports in recent years reflect a general decline in the demand for brierwood pipes. The imports at New York and Chicago of 25-cent, 50-cent, and $1 pipes from France, the principal competing country, were

77,508 dozen less in the year 1929 than in 1925. In the five larger domestic establishments, production in all grades, about 95 per cent of which consisted of 25-cent, 50-cent, and $1 pipes, was 365,813 dozen less in 1929 than in 1925. The decline in demand was chiefly in the 50-cent and $1 pipes, and was accompanied by an increased demand in 1929 for the unprofitable 25-cent grade. From 1925 to 1929, importations of the 50-cent and $1 grades from France were in part displaced by increased imports of these grades from Italy. By 1930, imports of 25-cent and 50-cent brierwood pipes had been temporarily replaced to a considerable degree by products, salable at these prices, made by small domestic producers.

Domestic marketing and transportation.—Metropolitan New York, the center of domestic manufacture, importation, and wholesale distribution, is the principal market in the United States for brierwood pipes. The large and small producers located in New York City produce at least 90 per cent of the total number of brierwood pipes manufactured in the United States, and 13 of the 14 principal importers are located there. As shipments of brierwood pipes from domestic markets of lesser importance to New York are negligible, and as the producers and importers at New York, who sell these pipes on an f. o. b. shipping point basis, employ similar marketing methods, transportation in the United States between New York and other domestic markets is not included in the costs for brierwood pipes.

Costs of production in the United States.—Costs of production and other data were obtained from four large domestic manufacturers—three in New York City and one in Chicago. The four plants of these manufacturers are estimated to produce about 65 per cent of the total domestic output. Brierwood pipes are also manufactured, mostly in New York City, in a number of small shops. Costs were not obtained in those shops. The pipes made in such establishments are not like and similar to other brierwood pipes, domestic or foreign. They are produced from inferior, off-size, or small-shaped wood blocks, which are purchased at lower prices than are paid by the larger plants. Fewer manufacturing operations are performed, and the products are cheaply finished.

Costs of production in France—Invoice prices as evidence of.—The costs of production of brierwood pipes in France are not readily ascertainable directly from the records of the producing companies. Therefore, invoice prices of the imports from that country have been used as evidence of foreign costs of production.

The average invoice price at which the brierwood pipes in each price group were imported in 1929 at New York, and by two firms at Chicago, was obtained by an analysis of customhouse and company records. The data obtained covered about 85 per cent of the total imports at all ports. Average unit transportation cost and other importing expenses from the principal competing country to New York, except duty, were also ascertained for the imports in each price group.

The year 1929 a representative cost period.—The calendar year 1929 is a representative cost period. The changes in styles and finish which were in progress since 1925 were fully developed by 1929. These changes in construction required additional manufac-

turing operations on the domestic pipes which were paralleled by the extra operations on imported pipes.

Differences in costs of production.—The differences in the costs of production in the United States and in France, the principal competing country, of 25-cent, 50-cent, and $1 brierwood pipes, are shown in Table 1. The difference in costs of the 25-cent pipes is slightly less than the equivalent of the present duty, based upon the imports during 1929; whereas the differences in costs for the 50-cent and $1 pipes are somewhat greater than the equivalent of the present duty. The average difference for the three groups is approximately equal to the present duty of 5 cents each and 60 per cent ad valorem.

TABLE 1.—*Summary cost comparison of domestic and foreign brierwood pipes, 1929*

	Retail price groups		
	25 cents	50 cents	$1
Total costs, New York, N. Y.:			
Domestic, cents per pipe	12.69	20.00	35.62
Foreign, cents per pipe	5.84	8.84	18.31
Excess of domestic over foreign costs, cents per pipe	6.85	11.16	17.31
Dutiable value, cents per pipe	5.21	8.06	17.06
Excess of domestic over foreign costs—ratio to dutiable value, per cent	131	138	101
Ad valorem equivalent of a compound duty of 5 cents each plus 60 per cent	156	122	89

PIPES OTHER THAN THOSE HAVING BOWLS OF BRIER WOOD OR ROOT, PIPE BOWLS, CIGAR AND CIGARETTE HOLDERS, AND MOUTHPIECES

The information obtained in the investigation with respect to smokers' articles other than brierwood pipes shows that the domestic consumption of some of these articles is very small. There is no domestic production on a commercial scale of certain other articles, and for these, no cost differences are ascertainable for the purposes of section 336 of the tariff act of 1930. On certain products in the group, cost differences are obtainable, but no reasonable basis for comparison of the domestic and foreign articles can be established, because of the great variety of such products, and their individuality and distinctiveness; or the effect of the rate of duty provided in the present law is obscured by other relevant factors, such as by a marked decline in the domestic demand for such articles. Taken in the aggregate, the commodies in this group are of small importance from the point of view of total imports or domestic consumption.

With respect to synthetic resin pipes, in 1929 the output of three of the five principal domestic producers amounted to only 235 gross and the imports at New York and Chicago were 1,368 gross. In 1929 the production of synthetic resin cigar and cigarette holders by the two larger manufacturers of them amounted to 125 gross, and the imports at New York and Chicago were 4,676 gross. Certain characteristics inherent in these pipes and holders caused a decline in recent years in the demand for them, irrespective of the rate of duty on the imports. Other pipes not having brierwood bowls are individual and distinctive, and afford no basis for ascertaining cost

differences. Imported brierwood cigar and cigarette holders are not like or similar to domestic holders of that material, in that the imports are higher priced and supply a different demand from the domestic holders.

There is no substantial competition in pipe bowls or mouthpieces for pipes or for cigar and cigarette holders. The bowls and mouthpieces which are separately imported consist, for the most part, of replacements furnished by the makers of the original pipes or holders covered by producers guarantees. The Congress, in fixing the same rate of duty in the tariff act of 1930 on pipe bowls and mouthpieces, as is provided for complete pipes, apparently took into consideration the possibility of their separate importation and subsequent joining to make complete pipes.

Importations of certain low-valued articles, not specially provided for, such as paper and quill cigarette holders, and pipes and cigar and cigarette holders made of cherry-wood (Weichsel), apparently ceased after the enactment of the tariff act of 1930, which carried a rate of duty of 5 cents each and 60 per cent on these articles. The imports through New York and Chicago in 1929, under the act of 1922, of these pipes and holders were as follows: Paper and quill cigarette holders, $15,186; cherry-wood pipes, $2,340; and cherry-wood cigar and cigarette holders, $941. There does not appear to be any production on a commercial scale in the United States of like or similar pipes and holders, for the purposes of section 336 of the tariff act of 1930.

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UNITED STATES TARIFF COMMISSION

EDIBLE GELATIN

REPORT TO THE PRESIDENT

ON THE

DIFFERENCES IN COSTS OF PRODUCTION OF EDIBLE GELATIN IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

WITH APPENDIX
PROCLAMATION BY THE PRESIDENT

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CONTENTS

	Page
Letter of transmittal	IV
Findings of the commission	1
Conclusion	2
Summary of information obtained in the investigation:	
History of the investigation	3
Description of commodity and scope of investigation	3
Domestic production	3
Exports	4
Imports	4
Principal competing country	5
Comparability of domestic and imported product	5
Basis of cost data	6
Principal market and transportation	6
Differences between domestic and foreign costs	6
Appendix: A proclamation by the President	7

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LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, March 12, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the reports of investigations made by the United States Tariff Commission of differences in costs of production in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, of * * * edible gelatin. All of these investigations, except that relating to edible gelatin, were made pursuant to Senate resolution.

Each of these reports is accompanied by a summary of information obtained by the commission in the particular investigation. The drafts of the proclamations in each investigation, in triplicate, are being submitted through the State Department in compliance with Executive order of November 8, 1929.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

THE PRESIDENT,
The White House.

EDIBLE GELATIN

UNITED STATES TARIFF COMMISSION,
Washington, D. C., March 12, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of edible gelatin in the United States and in the principal competing country for the purposes of section 336 of Title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation, the commission finds that the present rate of duty on edible gelatin valued at less than 40 cents per pound; namely, 20 per cent ad valorem and 5 cents per pound, should be reduced to 12 per cent ad valorem and 5 cents per pound. The commission makes no findings with respect to edible gelatin valued at 40 cents or more per pound.

The commission instituted this investigation and gave public notice of the hearing on November 7, 1930, in response to an application from the principal foreign producer of edible gelatin supplying imports of that product into the United States.

At this hearing, held in Washington, D. C., on December 12, 1930, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard as required by law.

FINDINGS OF THE COMMISSION

1. The domestic production of edible gelatin increased from 14,205,000 pounds in 1924 to 18,246,400 pounds in 1929. Imports of edible gelatin having a dutiable value of less than 40 cents per pound, constituting nearly the entire quantity imported, amounted to 3,231,000 pounds in 1924, to 1,958,000 pounds in 1928, and to 3,033,000 pounds in 1929. Imports in 1929 represented about one-seventh of apparent domestic consumption. During the time covered by these statistics the import duty on edible gelatin valued at less than 40 cents per pound was 3½ cents per pound and 20 per cent ad valorem. Imports of edible gelatin under this duty bracket from January 1 to June 17, 1930, amounted to 1,621,000 pounds, and for the remainder of the year 1930 to 765,000 pounds; domestic production in 1930 was 17,927,000 pounds.

2. The year 1929 is a representative period and has been used as the cost period in this investigation.

3. The Netherlands is the principal competing country for edible gelatin valued at less than 40 cents per pound.

4. There are numerous grades of edible gelatin distinguished chiefly by "strength." The tariff act of 1930 fixes two rates of duty on edible gelatin, the one on such gelatin valued (foreign value) at less than 40 cents per pound, and the other on gelatin valued at 40 cents or more per pound. Very nearly all of the domestic production and of imports consists of gelatin of a grade and value corresponding to the first of these duty brackets; no edible gelatin falling under the higher duty bracket is imported from the Netherlands. The edible gelatin produced in the principal competing country is

like or similar to the domestic edible gelatin for the purposes of section 336.

5. The principal market for edible gelatin in the United States is New York City.

6. Costs of production as ascertained in accordance with section 336:

(A) The cost of production of edible gelatin in the United States was ascertained by the commission, and the corresponding cost of production in the principal competing country was also ascertained. Inasmuch as there is only one producer in the principal competing country, these costs can not be disclosed.

(B) The cost of transportation and other delivery charges of such edible gelatin from the centers of domestic production to New York City was 0.49 cent per pound during the period covered by the investigation. The corresponding cost from the center of production in the principal competing country to the same market was also ascertained, but this cost can not be disclosed.

(C) No other relevant factors constituting an advantage or a disadvantage in competition were disclosed in the course of this investigation.

The excess of the cost of production, including transportation and other delivery charges to the principal market in the United States, of the domestic product over the corresponding cost of the foreign product, during the period covered by the investigation, was 7.8 cents per pound.

The value of the foreign article as ascertained by the customs officers and used in this investigation as the dutiable value for the purpose of section 336 was 23.7 cents per pound.

Conclusion

The commission finds it shown by the investigation (*a*) that the duty of 20 per cent ad valorem and 5 cents per pound expressly fixed by statute on edible gelatin valued at less than 40 cents per pound does not equalize the difference in the costs of production, including transportation and delivery to the principal market in the United States, of the said domestic article and the like or similar foreign article produced in the principal competing country; (*b*) that a decrease in the duty of 8 per cent ad valorem is necessary to equalize this difference; and (*c*) that the rates of duty necessary to equalize said difference are 12 per cent ad valorem and 5 cents per pound.

The commission makes no findings with respect to edible gelatin valued at 40 cents or more per pound.

Appended to this statement of findings is a summary of information obtained in the investigation.

Respectfully submitted.

Henry P. Fletcher,
Chairman.
Thomas Walker Page,
Vice Chairman.
John Lee Coulter,
Alfred P. Dennis,
Edgar B. Brossard,
Lincoln Dixon,
Commissioners.

SUMMARY OF INFORMATION OBTAINED IN THE INVESTIGATION WITH RESPECT TO EDIBLE GELATIN

Rates of duty		Edible gelatin	
Act of—	Paragraph No.—	Valued at less than 40 cents per pound	Valued at 40 cents or more per pound
1922	42	20 per cent plus 3½ cents per pound	20 per cent plus 7 cents per pound.
1930	41	20 per cent plus 5 cents per pound	Do.

History of the investigation.—The commission ordered the investigation of edible gelatin on November 7, 1930, in response to an application for a reduction in the duty on the part of the New York agent of the Delft Gelatin Works in the Netherlands.

Public notice was given on November 7, 1930, of the public hearing which was held on December 12, 1930.

Description of commodity and scope of investigation.—Edible gelatin is a translucent tasteless substance obtained either from ossein—a substance obtained by extracting mineral salts from degreased bones by means of dilute hydrochloric acid—or from certain animal tissues, such as calfskin or pigskin. Gelatin is extracted from these materials, after preliminary treatment, by means of boiling water. Several boilings are made, each successive one requiring longer time and higher temperature, and yielding a liquor containing less gelatin than the preceding one. The liquor containing the gelatin is drawn off, filtered, evaporated, chilled, dehydrated in tunnel dryers in sheet form, and subsequently either ground or flaked. It is usually sold in powdered form and is used in the manufacture of jelly powders, ice creams, and candy; by biscuit manufacturers, meat packers, and dairies; and small quantities are used as a backing for photographic films to prevent curling.

Although the law specifies different rates of duty on edible gelatin valued (in the foreign country) at less than 40 cents per pound and on that valued at 40 cents or more per pound, the findings in this investigation have been limited to edible gelatin valued at less than 40 cents per pound, because:

(*a*) Practically all the edible gelatin produced in the United States corresponds to that imported from the Netherlands, the principal competing country, at a value less than 40 cents per pound.

(*b*) Very nearly all the imports of edible gelatin consist of that valued at less than 40 cents per pound.

Domestic production.—Domestic production of edible gelatin is shown by the following table taken from the reports of the Bureau of the Census.

TABLE 1.—*Edible gelatin: Domestic production*

Year	Production	Year	Production
	Pounds		*Pounds*
1924	14, 204, 800	1928	17, 069, 000
1925	12, 535, 100	1929	18, 246, 400
1926	15, 473, 200	1930	17, 926, 600
1927	17, 548, 000		

For the period investigated, the combined production of the plants covered by the cost investigation amounted to 77 per cent of their combined capacity, as compared to 66 per cent for those covered for the 18-month period previously investigated.

The midwestern plants operated at 64 per cent (weighted average) of their maximum capacity for the period investigated, and the eastern plants at 85 per cent.

The leading centers of the edible gelatin industry in the United States are Chicago and Boston. Two plants are located near Chicago, four near Boston, and one each in or near Milwaukee, Detroit, Buffalo, Jamestown, N. Y., Camden, N. J., and New York City.

Of the 10 plants from which costs were obtained in the present investigation, 6 manufactured gelatin only, and 4 manufactured both gelatin and glue. Four of these plants used calfskin as their chief raw material, 3 used chiefly pigskin, and 3 used ossein.

Seven of the plants manufacturing edible gelatin are affiliated with concerns manufacturing other products.

Exports.—Exports of edible gelatin are not distinguished in the official statistics from those of other gelatins. The total exports of gelatin amount to approximately 300,000 pounds annually, valued at about $200,000. The chief foreign markets for American exports are Canada, Mexico, Australia, and the United Kingdom.

Imports.—As shown by Table 2, very nearly the entire importation of edible gelatin consists of that having a foreign value of less than 40 cents per pound. Except in the year 1929, when imports increased probably in anticipation of changes in the rate of duty under the pending act of 1930, the trend of imports of edible gelatin valued at less than 40 cents per pound has, in general, been downward. There have been wide variations, however, in the small quantities of edible gelatin of the higher duty bracket imported.

TABLE 2.—*Edible gelatin: Imports for consumption*

	Rate of duty	Quantity	Value	Duty collected	Value per unit of quantity	Actual or computed ad valorem rate
Valued at less than 40 cents per pound:		*Pounds*				*Per cent*
1924	3½ cents per pound and 20 per cent.	3,231,294	$659,753	$245,046	$0.204	37.1
1925	do	3,149,731	639,522	238,145	.203	37.2
1926	do	2,376,730	486,233	180,432	.205	37.1
1927	do	2,477,258	481,886	183,081	.195	38.0
1928	do	1,957,969	438,401	156,209	.224	35.6
1929	do	3,032,831	689,295	244,008	.227	35.4
1930 (Jan. 1–June 17)	do	1,621,194	379,605	132,663	.234	34.9
1930 (June 18–Dec. 31)	5 cents per pound and 20 per cent.	764,760	178,527	73,943	.233	41.4
Valued at 40 cents or more per pound:						
1924	7 cents per pound and 20 per cent.	40,937	35,454	9,956	.866	28.1
1925	do	21,759	15,621	4,647	.718	29.7
1926	do	8,438	7,408	2,072	.878	28.0
1927	do	2,140	1,661	482	.776	29.0
1928	do	4,242	3,249	947	.766	29.1
1929	do	32,317	26,672	7,597	.825	28.5
1930 (Jan. 1–June 17)	do	59,949	30,398	10,276	.507	33.8
1930 (June 18–Dec. 31)	do	41,962	39,150	10,767	.933	27.5

The principal port of entry of edible gelatin is New York. Of the imports from all countries of edible gelatin valued at less than 40 cents per pound, 82 per cent entered by that port in 1929 and 86 per cent in 1930.

As shown by Table 3, the imports of edible gelatin valued at less than 40 cents per pound have come chiefly from the Netherlands, Belgium, Germany, and France.

TABLE 3.—*Edible gelatin valued at less than 40 cents per pound: Imports for consumption by principal countries*

Country of origin	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	1924		1925		1926		1927	
	Pounds		*Pounds*		*Pounds*		*Pounds*	
Netherlands	1,526,173	$254,432	1,626,860	$279,373	1,108,831	$203,618	1,347,207	$246,079
Belgium	492,316	91,929	486,812	96,019	573,102	111,949	477,767	89,316
Germany	302,095	76,620	686,932	170,688	394,930	92,722	157,099	34,903
France	39,115	9,791	265,265	72,619	262,904	69,446	398,930	93,303
	1928		1929		1930			
Netherlands	688,548	160,456	937,801	224,547	781,348	178,111		
Belgium	192,337	37,474	265,313	58,395	208,545	51,908		
Germany	353,527	78,786	872,789	188,208	635.298	131,256		
France	562,252	126,233	904,834	204,837	714,257	188,997		

Principal competing country.—As also shown by Table 3, the Netherlands is the chief competing country for edible gelatin valued at less than 40 cents per pound, having maintained that position in each year since 1924.

The production of edible gelatin in the Netherlands is confined to a single plant, which uses ossein as its raw material. In 1929 about 55 per cent of the total sales of this plant was shipped to the United States; the corresponding proportion in 1924 and 1925 was 85 per cent.

Comparability of domestic and imported product.—Although different domestic manufacturers use different raw materials in the manufacture of edible gelatin, whereas the manufacturer in the Netherlands uses only ossein, this difference does not affect the comparability of the finished product. The preliminary treatment of the various raw materials differs, but the finished product is substantially the same, whatever the material used.

There are many grades both of the domestic and foreign product. The differences among them have to do chiefly with strength, or, as it is called in the trade, "bloom" (a name derived from the name of the instrument used in testing its strength). Manufacturers, in general, make gelatin in a number of different strengths. The product, however, is seldom if ever sold in the grades as originally produced, but is almost invariably blended to yield the particular grades desired by consumers. Gelatin of higher strength commands a higher price than that of lower strength, but the difference in price is not proportional to the difference in strength.

The commission investigated in detail the relative importance of the different grades in the production of the domestic plant and

of the foreign plant. It found that edible gelatin produced in the principal competing country is like or similar in quality and use to the domestic product for the purposes of section 336.

The domestic and the foreign product are sold to the same classes of consumers in the United States.

Basis of cost data.—Of the twelve domestic plants producing edible gelatin, ten were covered by the cost investigation; the others are of minor importance. The ten companies from which costs were obtained produce about 95 per cent of the total domestic output.

The cost data for nine of these domestic concerns were obtained directly from their books of record, and those for the other concern by means of a questionnaire. The data covered the calendar year 1929 for seven of the domestic producers and, for the others, the fiscal year most nearly corresponding to the 1929 calendar year.

The costs of production of the single Netherland concern for the calendar year 1929 were obtained directly from its books.

To guard against disclosure of the Netherlands company's costs, either directly or inferentially, from the average cost of the domestic product, the commission has omitted the detailed cost data from this report.

Principal market and transportation.—Much the largest single market for edible gelatin in the United States is New York City. The weighted average cost of transportation from the domestic plants to New York City was found to be 48½ cents per 100 pounds. The costs of transportation of the Netherlands product are withheld to guard against disclosing confidential information.

Differences between domestic and foreign costs.—The investigation disclosed that the domestic cost of production of edible gelatin, including transportation and other delivery charges to New York City, exceeded the corresponding delivered cost of the foreign product during the period covered by the investigation by 7.8 cents per pound.

The dutiable value of the foreign article imported during the period covered by the investigation and considered in the determination of the ad valorem duty necessary to equalize the difference in costs is 23.7 cents per pound.

During the period covered by the current investigation, 55 per cent of the edible gelatin sold by the Delft Gelatin Works in the Netherlands was consigned to their agent in New York, as compared to 85 per cent during the period covered by the previous investigation. The foreign costs of production as ascertained by the Tariff Commission and used in this investigation are higher than the invoice prices of the imported article.

A comparison of results of the present investigation with those of the previous investigation covering the years 1924 and 1925 shows that the cost of production of edible gelatin decreased 18.1 per cent in the Netherlands and decreased 5.7 per cent in the United States.

APPENDIX

A PROCLAMATION

By the President of the United States of America

DECREASING RATES OF DUTY ON EDIBLE GELATIN

Whereas under and by virtue of section 336 of Title III, Part II, of the act of Congress approved June 17, 1930, entitled "An act to provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, to protect American labor, and for other purposes," the United States Tariff Commission has investigated the differences in costs of production of, and all other facts and conditions enumerated in said section with respect to, edible gelatin, being wholly or in part the growth or product of the United States and of and with respect to a like or similar article wholly or in part the growth or product of the principal competing country;

Whereas in the course of said investigation a hearing was held, of which reasonable public notice was given and at which parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard;

Whereas the commisison has reported to the President the results of said investigation and its findings with respect to such differences in costs of production;

Whereas the commission has found it shown by said investigation that the principal competing country is the Netherlands, and that the duties expressly fixed by statute do not equalize the difference in the costs of production of the domestic article and the like or similar foreign article when produced in said principal competing country, and has specified in its report the decrease in the rates of duty expressly fixed by statute found by the commission to be shown by said investigation to be necessary to equalize such difference; and

Whereas in the judgment of the President such rates of duty are shown by such investigation of the Tariff Commission to be necessary to equalize such difference in costs of production.

Now, therefore, I, Herbert Hoover, President of the United States of America, do hereby approve and proclaim a decrease in the rates of duty expressly fixed in paragraph 41 of Title I of said act on edible gelatin, valued at less than 40 cents per pound, from 20 per centum ad valorem and 5 cents per pound to 12 per centum ad valorem and 5 cents per pound, the rates found to be shown by said investigation to be necessary to equalize such difference in costs of production.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this sixteenth day of March in the year of our Lord one thousand nine
[SEAL] hundred and thirty-one, and of the Independence of the United States of America the one hundred and fifty-fifth.

HERBERT HOOVER.

By the President:
HENRY L. STIMSON,
Secretary of State.

○

UNITED STATES TARIFF COMMISSION

FOURDRINIER WIRES, WOVEN-WIRE CLOTH, AND CYLINDER WIRES

REPORT TO THE PRESIDENT

ON THE

DIFFERENCES IN COSTS OF PRODUCTION OF FOURDRINIER WIRES, WOVEN-WIRE CLOTH, AND CYLINDER WIRES IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

WITH APPENDIX
PROCLAMATION BY THE PRESIDENT

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CONTENTS

	Page
Letter of transmittal	v
Findings of the commission	1
Conclusion	2
Summary of information obtained in the investigation:	
Rates of duty	4
Scope of the investigation	4
Description and uses of the articles	4
Domestic production	5
Exports	6
Imports	6
Consumption in the United States	7
Markets	8
Costs of production in the United States	9
Evidence of costs of production in Germany	10
Transportation and other delivery charges	11
Cost comparisons	12
Appendix: A proclamation by the President	14

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, March 12, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the reports of investigations made by the United States Tariff Commission of differences in costs of production in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, of * * * Fourdrinier wires, woven-wire cloth, and cylinder wires. All of these investigations, except that relating to edible gelatin, were made pursuant to Senate resolution.

Each of these reports is accompanied by a summary of information obtained by the commission in the particular investigation. The drafts of the proclamations in each investigation, in triplicate, are being submitted through the State Department in compliance with Executive order of November 8, 1929.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

THE PRESIDENT,
The White House.

FOURDRINIER WIRES, WOVEN-WIRE CLOTH, AND CYLINDER WIRES

UNITED STATES TARIFF COMMISSION,
Washington, March 12, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of Fourdrinier wires and cylinder wires, and of woven-wire cloth suitable for use in the manufacture of Fourdrinier or cylinder wires, in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation the commission finds that the present rate of duty on cylinder wires, having more than 55 meshes per lineal inch in warp or filling, and Fourdrinier wires, suitable for use in paper-making machines (whether or not parts of or fitted or attached to such machines); and on woven-wire cloth, having more than 55 meshes per lineal inch in warp or filling, suitable for use in the manufacture of Fourdrinier wires or cylinder wires, expressly fixed by the tariff act of 1930; namely, 50 per centum ad valorem, should be increased to 75 per centum ad valorem.

The commission makes no finding with respect to cylinder wires or woven-wire cloth having not more than 55 meshes per lineal inch in warp or filling.

The commission instituted this investigation on July 11, 1930, in compliance with Senate resolution No. 313, dated July 3, 1930.

Public notice of the hearing was given on November 7, 1930. At this hearing, held in Washington, D. C., on December 9, 1930, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. Both domestic production and imports of Fourdrinier wires have remained fairly constant during the last four or five years. The total consumption was 7,029,141 square feet in 1929, of which imports constituted 17.7 per cent. There have not been any substantial imports of cylinder wires or of wire cloth suitable for use in the manufacture of Fourdrinier or cylinder wires.

2. The calendar year 1929 is a representative period and has been used as the cost period in this investigation.

3. Germany is the principal competing country.

4. Fourdrinier wires, constituting the bulk of domestic and foreign wires used on paper-making machines, are made in several grades and degrees of fineness, but those having from 60 to 80 meshes per

lineal inch in the warp constitute nearly the entire business, both as to domestic production and imports. The cost differences for those meshes are representative of the cost differences of all Fourdrinier wires, of cylinder wires having over 55 meshes, and of all woven-wire cloth having over 55 meshes per lineal inch in warp or filling and suitable for use in the manufacture of Fourdrinier or cylinder wires. The commission, therefore, confined its cost comparison to Fourdrinier wires of those meshes.

5. Fourdrinier wires having from 60 to 80 meshes per lineal inch produced in Germany are like or similar to the domestic product of the same number of meshes.

6. The paper-producing regions of Maine, New Hampshire, Vermont, Massachusetts, New York, New Jersey, Pennsylvania, Ohio, Michigan, Wisconsin, and Minnesota are the principal markets in the United States for all grades of both the domestic and imported Fourdrinier wires and cylinder wires.

7. The cost of production of Fourdrinier wires, cylinder wires, and woven-wire cloth suitable for use in the manufacture of such wires, as defined in section 336 (h) (4), was not readily ascertainable for the principal competing country, and the commission, in accordance with section 336 (e) (2) (A), accepted the weighted average of invoice prices as evidence of such cost.

8. Costs of production ascertained in accordance with section 336:

(A) The weighted average cost of production in the United States of Fourdrinier wires of all the principal meshes was 46.0 cents per square foot for the period covered by the investigation. The corresponding cost of production in the principal competing country, as evidenced by invoice prices, was 24.2 cents per square foot.

(B) The cost of transportation and other delivery charges of Fourdrinier wires from the centers of domestic production to the principal markets in the United States was 0.6 cent per square foot for 1929, and the corresponding cost from the centers of production in the principal competing country to the same markets was 2.8 cents per square foot.

(C) No other relevant factors constituting an advantage or a disadvantage in competition were disclosed in the course of this investigation.

The total cost of production of Fourdrinier wires in the United States, including delivery to the principal markets, was thus 46.6 cents per square foot; the corresponding cost of the foreign Fourdrinier wires was 27.0 cents per square foot; and the difference in such costs was 19.6 cents per square foot.

The dutiable value of the imported Fourdrinier wires averaged 25.2 cents per square foot.

CONCLUSION

The commission finds it shown by the investigation (*a*) that the duty of 50 per centum ad valorem expressly fixed by statute on cylinder wires having more than 55 meshes per lineal inch in warp or filling, and Fourdrinier wires, suitable for use in paper-making machines (whether or not parts of or fitted or attached to such machines), and on woven-wire cloth having more than 55 meshes per lineal inch in warp or filling and suitable for use in the manufacture of Fourdrinier wires or cylinder wires, does not equalize the difference in the costs of

production, including transportation and delivery to the principal markets in the United States, of the domestic articles and the like or similar foreign articles produced in the principal competing country; (*b*) that an increase in that rate of 25 per centum ad valorem is necessary to equalize such difference; and (*c*) that the rate of duty necessary to equalize such difference is 75 per centum ad valorem.

Appended to this statement of findings is a summary of information obtained in the investigation.

Respectfully submitted.

HENRY P. FLETCHER,
Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
JOHN LEE COULTER,
ALFRED P. DENNIS,
EDGAR B. BROSSARD,
LINCOLN DIXON,
Commissioners.

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SUMMARY OF INFORMATION OBTAINED IN THE COMMISSION'S INVESTIGATION

RATES OF DUTY

Act of 1930, paragraph 318, 50 per cent.

Act of 1922, paragraph 372, 30 per cent (G. A. 9131, T. D. 41596, effective June 25, 1926).

Act of 1922, paragraph 318, 35 per cent.

Woven-wire cloth suitable for use in the manufacture of Fourdrinier wires and cylinder wires was provided for in paragraph 318 of the act of 1922, the rate depending upon the meshes per lineal inch. The decision (G. A. 9131, T. D. 41596) cited above held that Fourdrinier wires were properly classifiable under paragraph 372 of the act of 1922 as parts of machines, not specially provided for.

SCOPE OF THE INVESTIGATION

The scope of this inquiry is indicated by the title. A few specialties, consisting of wires of unusual mesh or material or weave, are manufactured in the United States and imported in such small quantities that there is no reliable basis for cost comparisons. Such specialties have therefore been disregarded.

DESCRIPTION AND USES OF THE ARTICLES

Fourdrinier and cylinder wires are used almost exclusively [1] by the paper-manufacturing industry. By far the most important item is Fourdrinier wire, which is usually made from brass or bronze [2] woven-wire cloth having as a rule from 60 to 80 meshes or wires per inch of warp. Fourdrinier wires are made in widths of 29 to 253 inches, and in lengths of 28 to 100 feet. The ends of the strip are sewed together to form an endless belt. This belt is used in the Fourdrinier paper-making machine and acts both as a filter, allowing rapid drainage of the surplus water from the pulp, and as a conveyor, retaining the moist pulp and permitting the necessary felting of the fibers. About 1.5 tons of newsprint paper are produced per square foot of Fourdrinier wire used.

Cylinder wires, also known to the trade as cylinder facings and cut cloth, are likewise fine woven-wire cloth, generally somewhat coarser than Fourdrinier wires, but they are not made up into endless belts. The required quantities are cut to size from rolls of wire cloth and fitted to the cylinders of the cylinder type paper-making machines. The cylinder machine is generally used for making pasteboards, wrapping paper, and other relatively coarse paper products. The function of the cylinder wires or facings is the same as that of Fourdrinier wires.

[1] The use in making "reconstructed" leather is still unimportant.

[2] Some Monel metal is used in the United States.

Wire cloth suitable for Fourdrinier and cylinder wires is not finished to dimensions, and is not generally imported. It is included within the scope of this investigation because Fourdrinier or cylinder wires can be made from it at relatively little expense.

DOMESTIC PRODUCTION

In 1929 there were 23 plants in the United States making, or equipped to make, Fourdrinier and cylinder wires. The principal producing States are Massachusetts, Connecticut, New York, New Jersey, Ohio, and Wisconsin, corresponding in a general way to the chief consuming area. Eight of these plants had such a small output that their combined effect on domestic production was negligible. Eight other relatively small plants worked at almost full capacity and produced less than 13 per cent of the total domestic output. The remaining seven producers, working at an average of about 74 per cent of plant capacity, produced over 85 per cent of the total output.

During the World War, when the importation of paper-making wires from Europe was difficult, the domestic industry expanded to a capacity sufficient to supply the domestic demand. With the postwar reappearance of imported wires and, perhaps, a slight falling off in total demand for paper-machine wires due partly to improved wires with longer life and partly to substitution of imported newsprint paper for the domestic paper, the domestic wire industry in 1929 was approximately 8 per cent overdeveloped with respect to the total domestic demand.

The following table shows production statistics.

TABLE 1.—*Fourdrinier wires and cylinder wires: Sales of domestic wires in the United States, 1925–1929*

[Square feet]

Year	Fourdrinier wires		Cylinder wires	Total
1929	[1] 5,455,321	[2] 5,785,334	[2] 2,177,116	[2] 7,962,450
1928	5,225,192			
1927	5,462,703	[3]	[3]	[3]
1926	5,887,089			
1925	5,259,438			

[1] Production reported by Wire Cloth Manufacturers Association (8 producers).
[2] Sales determined by commission's investigation (19 producers).
[3] Data not available.

Fourdrinier wires and cylinder wires made in the United States are generally of brass, but a considerable quantity have bronze wires in the warp and brass in the shute or filler. A few cylinder wires are of copper-nickel alloy. Fourdrinier wires run from 40 to 100 mesh. Cylinder wires run from 14 mesh for backing to about 65 mesh for facing; the commonest sizes are 40, 50, and 60 mesh.

TABLE 2.—*Fourdrinier wires: Production, by mesh sizes, 1929*

Size of mesh	Square feet	Per cent of total
60	1,535,867	28
65	1,196,215	22
70	1,324,509	24
75	852,821	15
80	486,177	9
Other	102,686	2
Total	[1] 5,498,275	100

[1] Production analyzed; total sales given in Tables 1 and 5.

EXPORTS

Official export statistics show no separate classification for Fourdrinier and cylinder wires. Producers' shipping records do not show any exports. There are producers in Canada, and one of the domestic producers formerly had a branch factory in Canada which he later sold.

IMPORTS

Imported Fourdrinier and cylinder wires have been on the market in substantial volume for many years except during the period of the World War. They are handled by about six importers.

Imports of Fourdrinier and cylinder wires were determined from invoices and the data were checked from the records of importers. Importers' records were also the source of data covering all distribution to markets and handling and transportation charges in the United States. Of the total imports of Fourdrinier and cylinder wires, amounting in 1929 to 13.5 per cent of total consumption in the United States, 94 per cent was entered at New York.

Of the total quantity entered during 1929, less than 0.2 per cent consisted of cylinder wires, all of which were imported from France and Scotland. All cylinder wires entered during 1930 under the act of 1930 were from Germany.

Of the paper-machine wires imported during 1929, 53 per cent was from Germany, which is, therefore, the chief competing country for the purposes of this investigation.

The imported wires differ from the domestic in component material; 99.7 per cent of the imported are made with a bronze warp, whereas 70 per cent of the domestic output are brass. Fourdrinier wires with bronze warp are slightly more resistant to corrosion, and somewhat less resistant to frictional wear, than are wires made entirely of brass.

Inasmuch as paper-machine wires were not separately classified in import statistics under the act of 1922, statistical data covering a period of years are not available. Information from the trade indicates that there has been no important change in the volume or character of imports for several years.

The following tables give pertinent data respecting imports in 1929 in all the detail that may be divulged and preliminary figures for imports under the act of 1930. The figures for 1929 do not include about 28,000 square feet imported on the Pacific coast.

TABLE 3.—*Fourdrinier and cylinder wires: Imports, by mesh and by country of origin, 1929*

	Quantity		Value
	Total [1]	Per cent of total	
Mesh:	*Square feet*	*Square feet*	
14	1,120	0.1	$224
20	267	----------	81
40	101	----------	21
60	510,293	41.9	128,099
65	99.321	8.2	23,907
70	344,593	28.3	90,646
75	145,501	11.9	40,190
80	39,299	3.2	11,044
Other	77,484	6.4	27,492
Total	1,217,979	100.0	321,704
Country of origin:			
Germany	642,461	52.7	164,190
Austria	321,272	26.4	92,222
France	240,460	19.7	61,217
Scotland	7,415	.6	2,270
Sweden	4,274	.4	1,253
Czechoslovakia	2,097	.2	552
Total	1,217,979	100.0	321,704

[1] Does not include imports on Pacific coast for which no analysis was available. See Table 5 for total.

TABLE 4.—*Fourdrinier and cylinder wires and woven-wire cloth suitable for use in the manufacture of Fourdrinier and cylinder wires: Imports for consumption, by country of origin, June 18–December 31, 1930*

	Quantity	Value
Fourdrinier wires suitable for use in paper-making machines:	*Square feet*	
Germany	76,911	$22,269
France	46,669	14,320
Sweden	31,674	7,289
Austria	25,900	9,924
Belgium	9,625	1,625
United Kingdom	1,125	241
Total	191,904	55,668
Cylinder wires suitable for use in paper-making machines, Germany	1,044	266
Woven-wire cloth suitable for use in the manufacture of Fourdrinier wires or cylinder wires: [1]		
Germany	20,689	5,384
Austria	17,187	4,323
France	9,005	3,087
Total	46,881	12,794

[1] Inspection of invoices indicated that this class is mostly finished Fourdrinier wires.

CONSUMPTION IN THE UNITED STATES

The consumption of paper-machine wires in the United States is fairly constant, varying only with the production of paper.

Inasmuch as stocks of paper-machine wires kept by manufacturers and importers are small and nearly constant in quantity, and as

exports are negligible, the sum of domestic production and imports is equivalent to consumption, and is shown in the following table:

TABLE 5.—*Fourdrinier and cylinder wires: Consumption in the United States, by size of mesh, 1929*

[Thousands of square feet]

	Production	Imports	Consumption	
			Total	Per cent of total
Fourdrinier wires:				
60-mesh	1,620	520	2,140	23.3
65-mesh	1,271	101	1,372	14.9
70-mesh	1,390	352	1,742	18.9
75-mesh	868	148	1,016	11.0
80-mesh	520	40	560	6.1
Other	116	79	195	2.1
Total	5,785	1,240	7,025	76.3
Cylinder wires	2,177	2	2,179	23.7
Total, Fourdrinier and cylinder wires	7,962	1,242	9,204	100.0

MARKETS

The market for paper-machine wires in the United States is rigidly limited to the areas where paper is manufactured and to the requirements of the paper industry.

About 86 per cent of all Fourdrinier wires used in the United States are sold in the region east of the Mississippi and north of the Ohio and Potomac Rivers, and 7 per cent in Pacific Coast States. The commission obtained data covering the distribution of 97 per cent of the total consumption of Fourdrinier wires in 1929. The shipments during this period to each State receiving more than 1 per cent of the total consumption (Vermont is also shown) are given in the following table:

TABLE 6.—*Distribution of Fourdrinier wires sold in the United States, 1929*

State	Domestic	Imported	Total	Per cent of total sales
	Square feet	*Square feet*	*Square feet*	
Louisiana	55,488	13,403	68,891	1.
Maine	923,768	343,378	1,267,146	18.
Massachusetts	435,301	69,478	504,779	7.
Michigan	359,441	54,470	413,911	6.
Minnesota	113,566	21,728	135,294	2.
New Hampshire	218,998	4,967	223,965	3.
New Jersey	63,144	56,556	119,700	1.
New York	967,911	229,384	1,197,295	17.
Ohio	257,952	209,211	467,163	6.
Oregon	172,410	19,989	192,399	2.
Pennsylvania	498,160	43,900	542,060	8.
Virginia	131,422	4,381	135,803	2.
Washington	273,099	6,806	279,905	4.
Wisconsin	660,584	101,462	762,046	11.
Vermont	36,973	9,329	46,302	.
14 other States	330,058	----------	426,792	6.
10 other States	----------	96,734		
Total analyzed	5,498,275	1,285,176	6,783,451	100.

Maine, New Hampshire, Vermont, Massachusetts, New York, New Jersey, Pennsylvania, Ohio, Michigan, Wisconsin, and Minnesota were selected as the principal markets in the United States for the purposes of this report. Those 11 States consume 83 per cent of domestic production and 89 per cent of imported wires and contain nearly all the domestic wire-weaving plants and the ports of entry for the imported wires. Conditions of sale and distribution are generally uniform throughout the area.

COSTS OF PRODUCTION IN THE UNITED STATES

The great bulk of the domestic output is from only a few plants, and it was, therefore, found practicable to obtain data from all the principal producers and to include a representative number of the smaller plants as well. Nineteen domestic plants were called upon to furnish cost and other data. Of these, six had no reliable records or only a negligible volume of production, and three were able to supply data for a rough estimate of cost which was not considered sufficiently reliable for the purpose to be served. From the remaining 10 plants, complete and reliable data were obtained and those data furnish the basis of the domestic costs, including as they do large and small plants and those having both low and relatively high cost. A critical analysis of cost elements was made in each plant and a uniform costing method adopted to insure comparable results in detail for the various kinds and meshes of wires.

The following table shows for 60-mesh Fourdrinier wires the detail in which all costs were calculated and gives the ratios of the various cost elements to the totals and the cost relation between brass and bronze wires.

Detailed costs for Fourdrinier wires of the finer meshes show a somewhat lower proportion of raw material cost and a higher labor cost.

TABLE 7.—*Average cost of production of 60-mesh Fourdrinier wires in the United States, 1929*

Item	Brass		Bronze	
	Unit cost	Per cent of total	Unit cost	Per cent of total
	Cents per square foot		*Cents per square foot*	
Net wire used	12.00	29.39	16.40	34.34
Weaving and other direct labor	11.86	29.07	12.11	25.35
Factory overhead	6.53	15.99	8.08	16.93
Total factory cost of cloth	30.39	74.45	36.59	76.62
Sewing, stretching, etc., labor	2.32	5.68	2.32	4.85
Cost of boxes and poles	1.76	4.32	1.42	2.97
Factory overhead	1.83	4.47	1.70	3.57
Total factory cost of wires	36.30	88.92	42.03	88.01
General and administrative expense	2.77	6.78	3.70	7.74
Total manufacturing cost of wires	39.07	95.70	45.73	95.75
Imputed interest on investment	1.75	4.30	2.03	4.25
Total manufacturing cost including interest on investment	40.82	100.00	47.76	100.00

Specific costs were compiled separately for brass and bronze Fourdrinier wires of 60, 65, 70, 75, and 80 mesh, constituting about 98 per cent of the total production of Fourdrinier wires. Weighted averages were calculated for each kind and mesh of Fourdrinier wire costed, and those averages combined, weighting on the basis of sales to the principal markets, to obtain an average of all domestic Fourdrinier wires. Those individual costs and the averages derived therefrom appear in the following table:

TABLE 8.—*Fourdrinier wires: Cost of production in the United States, 1929*

[Cents per square foot]

Mesh	Brass	Bronze	Total
60	40.82	47.76	44.61
65	44.30	47.25	45.03
70	43.70	48.25	44.43
75	49.38	51.65	49.93
80	50.67	55.22	50.89
Total	45.06	48.34	46.04

EVIDENCE OF COSTS OF PRODUCTION IN GERMANY

The commission found that costs of production as defined in section 336 (h) (4) for the principal competing country were not readily ascertainable. Accordingly, as authorized by law, it accepted invoice prices of the imported wires as evidence of foreign cost.

Invoice prices, f. o. b. plant, were obtained for each of the principal items of Fourdrinier and cylinder wires imported, and included prices on 65 and 80 mesh brass Fourdrinier from France; 60, 65, 70, 75, and 80 mesh bronze Fourdrinier from Germany; and 40 and 60 mesh brass cylinder from France. The invoices from which the prices were taken represent 88 per cent of the total imports of Fourdrinier wires from Germany in 1929, and 64 per cent of the total imports of cylinder wires from France.

The cost comparison is confined, in accordance with law, to paper-machine wires from the principal competing country, Germany, but the investigation shows that prices in and charges from other countries of origin are substantially the same as in Germany.

The following table shows the cost of production and the dutiable values of Fourdrinier wires of the several meshes imported from Germany, as evidenced by invoices, and general averages weighted on the basis of total shipments from Germany to the United States in 1929:

TABLE 9.—*Average invoice price and dutiable value of bronze Fourdrinier wires imported from Germany, 1929*

Size of mesh	Shipments	Invoice price f. o. b.	Dutiable value
	Square feet	*Cents per square foot*	*Cents per square foot*
60	374,407	24.64	25.54
65	37,263	22.99	24.13
70	188,520	23.24	24.39
75	4,519	31.20	31.20
80	12,649	26.67	26.67
Total and averages	617,358	24.20	25.17

Invoice prices of Fourdrinier wires imported from Austria, the second most important source, were determined by the same methods as were used for the German wires and were found to be substantially lower than the prices of corresponding German wires. The prices of the different meshes of bronze Fourdrinier wires compare as follows:

TABLE 10.—*Comparison of invoice prices of German and Austrian bronze Fourdrinier wires, f. o. b. plant, and delivered to importer (ex duty), 1929*

[Cents per square foot]

Size of mesh	Price f. o. b. plant		Total cost to importer (ex duty)	
	German	Austrian	German	Austrian
60	24.64	21.60	25.51	25.30
65	22.99	21.60	24.97	25.30
70	23.24	21.60	25.23	25.30
75	31.20	25.30	33.28	29.00
80	26.67	25.30	28.81	29.00

Apparently, the lower price of the Austrian wires is compensated for by higher transportation charges to the United States.

TRANSPORTATION AND OTHER DELIVERY CHARGES

Paper-machine wires are a precision manufacture and have a high value relative to their weight. For this reason the item of transportation is a small proportion of total cost delivered, and all producers and importers are enabled to distribute generally throughout the markets.

Information obtained by the commission with respect to transportation and other charges incident to delivery of imported and domestic Fourdrinier wires in the principal markets is exhaustive.

Data were obtained for the period of the investigation from all producers whose costs were obtained covering all shipments during 1929 and giving destinations, quantities, and transportation paid. Those data were first analyzed and later combined by States to furnish an average cost of transportation for wires sold in each State. The weighted average for the United States was obtained by weighting the State averages by the total consumption in each State.

Precisely similar data were obtained from the importers of Fourdrinier wires and analyzed and combined in the same manner. The results of this portion of the investigation are tabulated below.

TABLE 11.—*Fourdrinier wires: Transportation cost in United States, 1929*

State of destination	Shipments			Transportation cost	
	Domestic	Imported	Total	Domestic	Imported
	Square feet	*Square feet*	*Square feet*	*Cents per square foot*	*Cents per square foot*
Maine	923,768	343,378	1,267,146	0.711	0.780
Massachusetts	435,301	69,478	504,779	.564	.525
Michigan	359,441	54,470	413,911	.684	1.230
Minnesota	113,566	21,728	135,294	1.028	2.200
New Hampshire	218,998	4,967	223,965	.598	.370
New Jersey	63,144	56,556	119,700	.604	.375
New York	967,911	229,384	1,197,295	.583	.550
Ohio	257,952	209,211	467,163	.572	.860
Pennsylvania	498,160	43,900	542,060	.629	.575
Vermont	36,973	9,329	46,302	.529	.680
Wisconsin	660,584	101,462	762,046	.473	1.605
Total	4,535,798	1,143,863	5,679,661	.570	.916

With respect to the cost of transporting imported wires from the factory in Germany to the United States, data in corresponding detail were obtained from invoices and from importers' records. The invoices and attached documents furnished all necessary information as to transportation from plant to port of exportation, charges at the port of exportation, including consular fee and port charges, and ocean freight and insurance from the port of exportation in the foreign country to the port of importation in the United States. From importers' books were obtained data covering import charges, brokerage, customhouse bond, warehousing, cartage, and re-marking cases. The following table shows, for different meshes of Fourdrinier wire and an average for all Fourdrinier wires, the cost per square foot of the items mentioned.

TABLE 12.—*Transportation and other delivery charges, from plant to importer's warehouse, on Fourdrinier wires imported from Germany, 1929*

[Cents per square foot]

Mesh	60	65	70	75	80	Average [1]
Square feet covered by invoice analysis	374,407	37,267	188,521	4,519	12,649	617,363
Freight from plant to foreign port	0.71	0.79	0.80	0.68	0.83	0.74
Ocean freight, insurance, and consular fee	.64	.73	.72	.76	.85	.68
Miscellaneous expenses to importer	.52	.46	.47	.64	.46	.50
Total (cents per square foot)	1.87	1.98	1.99	2.08	2.14	1.92

[1] Weighted on basis of shipments of wires from Germany.

COST COMPARISONS

As previously stated, the commission bases its findings upon the comparison of the costs, including all transportation and delivery charges to the 11 States constituting the principal markets of the United States, of brass and bronze Fourdrinier wires of domestic manufacture of five meshes and of the corresponding meshes of bronze Fourdrinier wires imported from Germany, the principal competing country, and including all transportation and other charges incident to delivery of such wires to the principal markets of the United States. The cost differences so obtained may be taken as representative of the differences in costs of production of all Fourdrinier wires, and of cylinder wires having more than 55 meshes per lineal inch in warp or filling and of woven-wire cloth having more than 55 meshes per lineal inch in warp or filling and suitable for use in the manufacture of Fourdrinier wires and of cylinder wires.

It should be noted that on account of the general distribution throughout the chief markets of both imported and domestic wires, the statistical methods employed in obtaining averages of cost and transportation have minor effect upon the results.

The following table compares the costs of production as determined by the commission for the comparable domestic and foreign articles:

TABLE 13.—*Fourdrinier wires: Comparison of domestic and foreign costs of production, including transportation and other expenses of delivery to the principal markets in the United States, 1929*

[Cents per square foot]

Domestic costs:		
Weighted average cost of production	46.0	
Weighted average cost of transportation to the principal markets	.6	
Total		46.6
Foreign costs:		
Cost of production as evidenced by weighted average invoice price	24.2	
Transportation and other expenses to port of importation	1.4	
Weighted average cost of transportation and delivery in the United States to the principal markets	1.4	
Total		27.0
Amount by which domestic costs exceed foreign costs		19.6
Dutiable value		25.2

APPENDIX

A PROCLAMATION

By the President of the United States of America

[INCREASING RATE ON DUTY ON FOURDRINIER WIRES, CYLINDER WIRES, AND WOVEN-WIRE CLOTH]

Whereas under and by virtue of section 336 of Title III, Part II, of the act of Congress approved June 17, 1930, entitled "An Act To provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, to protect American labor, and for other purposes," the United States Tariff Commission has investigated the differences in costs of production of, and all other facts and conditions enumerated in said section with respect to, Fourdrinier wires and cylinder wires, suitable for use in paper-making machines (whether or not parts of or fitted or attached to such machines), and woven-wire cloth suitable for use in the manufacture of Fourdrinier wires or cylinder wires, being wholly or in part the growth or product of the United States and of and with respect to like or similar articles wholly or in part the growth or product of the principal competing country;

Whereas in the course of said investigation a hearing was held, of which reasonable public notice was given and at which parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard;

Whereas the commission has reported to the President the results of said investigation and its findings with respect to such differences in costs of production;

Whereas the commission has found it shown by said investigation that the principal competing country is Germany, and that the duties expressly fixed by statute do not equalize the difference in the costs of production of the domestic articles and the like or similar foreign articles when produced in said principal competing country, and has specified in its report the increase in the rate of duty expressly fixed by statute found by the commission to be shown by said investigation to be necessary to equalize such difference; and

Whereas in the judgment of the President such rate of duty is shown by such investigation of the Tariff Commission to be necessary to equalize such difference in costs of production;

Now, therefore, I, Herbert Hoover, President of the United States of America, do hereby approve and proclaim an increase in the rate of duty expressly fixed in paragraph 318 of Title I of said act on cylinder wires having more than 55 meshes per lineal inch in warp or filling, and Fourdrinier wires, suitable for use in paper-making machines (whether or not parts of or fitted or attached to such machines, and on woven-wire cloth having more than 55 meshes per

lineal inch in warp or filling and suitable for use in the manufacture of Fourdrinier wires or cylinder wires, from 50 per centum ad valorem to 75 per centum ad valorem, the rate found to be shown by said investigation to be necessary to equalize such difference in costs of production.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this sixteenth day of March, in the year of our Lord one thousand nine hundred and thirty-one, and of the Independence of the United States of America the one hundred and fifty-fifth.

[SEAL.] HERBERT HOOVER

By the President:
HENRY L. STIMSON,
Secretary of State.

○

UNITED STATES TARIFF COMMISSION

WOOL-FELT HAT BODIES AND HATS

REPORT TO THE PRESIDENT

ON THE

DIFFERENCES IN COSTS OF PRODUCTION OF WOOL-FELT HAT BODIES AND HATS IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

WITH APPENDIX
PROCLAMATION BY THE PRESIDENT

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CONTENTS

	Page
Letter of transmittal	IV
Findings of the commission:	
Wool-felt hat bodies	2
Wool-felt hat bodies, hoods, forms, and shapes, if pulled, stamped, blocked, or trimmed	2
Conclusions	3
Summary of information:	
Hat bodies and finished hats—	
Rates of duty	4
General status of the industry	4
Production in the United States—	
Hat bodies	5
Finished hats	6
Imports	6
Principal competing country	7
Exports	7
Hat bodies—	
Comparability of imported and domestic hat bodies	7
Costs of production—	
Basis of domestic costs	8
Basis of foreign costs	8
Principal market and costs of transportation	8
Other relevant factors in competition	8
Comparison of domestic and foreign costs of wool-felt hat bodies	8
The specific compensatory duty	9
Advanced or finished hats—	
Basis of cost comparison	9
Principal market and transportation	10
Comparatitve costs of conversion	10
Relation of cost difference to duty	10
Appendix: Proclamatiton by the President	11

22 Dec. 1931 Mailed

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, March 12, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the reports of investigations made by the United States Tariff Commission of differences in costs of production in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, of * * * wool-felt hat bodies and hats. All of these investigations, except that relating to edible gelatin, were made pursuant to Senate resolution.

Each of these reports is accompanied by a summary of information obtained by the commission in the particular investigation. The drafts of the proclamations in each investigation, in triplicate, are being submitted through the State Department in compliance with Executive order of November 8, 1929.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

THE PRESIDENT,
The White House.

WOOL-FELT HAT BODIES AND HATS

UNITED STATES TARIFF COMMISSION,
Washington, March 12, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of wool-felt hat bodies and hats in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation, the commission finds that the present rates of duty fixed by the tariff act of 1930, on bodies, hoods, forms, and shapes, for hats, bonnets, caps, berets, and similar articles, manufactured wholly or in part of wool felt; namely, 40 cents per pound and 75 per cent ad valorem, and, in addition thereto, on all the foregoing, if pulled, stamped, blocked, or trimmed (including finished hats, bonnets, caps, berets, and similar articles), 25 cents per article, should be reduced to the following: On bodies, hoods, forms, and shapes, for hats, bonnets, caps, berets, and similar articles, manufactured wholly or in part of wool felt, 40 cents per pound and 55 per cent ad valorem, and, in addition thereto, on all the foregoing, if pulled, stamped, blocked, or trimmed (including finished hats, bonnets, caps, berets, and similar articles), 12½ cents per article.

The commission instituted this investigation on July 11, 1930, in compliance with Senate Resolution No. 313, dated July 3, 1930.

Public notice of the hearing was given on September 22, 1930. At this hearing, held in Washington, D. C., on November 14, 1930, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. Both imports and domestic production of wool-felt hat bodies and hats increased markedly in the five years preceding 1930. Prior to 1928 statistics of imports of these articles were not separately classified. Imports for consumption amounted to 2,496,000 dozens in 1928 and to 3,495,000 dozens in 1929. Domestic production amounted to 755,000 dozens in 1927 and to 978,000 dozens in 1929. Of the apparent domestic consumption in 1929, imports supplied 78 per cent in number and 75 per cent in weight. Under the tariff act of 1922, in force through June 17, 1930, the rate of duty varied according to the unit value, but most of the imports were hats and hat bodies valued at not over $2 per pound bearing a rate of 24 cents per pound and 40 per cent ad valorem.

2. The year 1929 is a representative period and has been used as the cost period in this investigation.

3. Italy is the principal competing country.

4. New York is the principal market in the United States for both wool-felt hat bodies and wool-felt hats.

Wool-felt Hat Bodies.

5. For the purpose of cost comparison under section 336 of the tariff act of 1930, the wool-felt hat bodies imported from Italy, considered as a group, are like or similar to wool-felt hat bodies of the second quality produced in the United States. The cost difference between wool-felt hat bodies of this domestic quality and the foreign group is representatitve of the cost difference for all qualities for such purpose.

6. The cost of production of wool-felt hat bodies, as defined in section 336 (h) (4) was not readily ascertainable for the principal competing country, and the commission, in accordance with section 336 (e) (2) (A), accepted as evidence thereof the weighted average invoice price of imports from that country.

7. Cost of production ascertained in accordance with section 336:

(A) The cost of production of wool-felt hat bodies of the second quality produced in the United States, not including transportation, was $2.515 per pound for the period covered by the investigation. The corresponding cost of production in the principal competing country, as evidenced by invoice prices, was $1.34 per pound.

(B) The cost of transportation and other delivery charges of such wool-felt hat bodies from the centers of domestic production to the principal market in the United States was 2.5 cents per pound in 1929, and the corresponding cost from the centers of production in the principal competing country to the same market was 7 cents per pound.

(C) No other relevant factors constituting an advantage or a disadvantage in competition were disclosed in the course of the investigation.

The total cost of production of such wool-felt hat bodies in the United States, including transportation and other delivery costs to the principal market, was thus $2.54 per pound; the corresponding foreign cost was $1.41 per pound; and the difference in such costs was $1.13 per pound.

The average dutiable value of wool-felt hat bodies imported from Italy in the period covered by the investigation was $1.34 per pound.

8. The specific duty of 40 cents per pound on wool-felt hat bodies provided in the tariff act of 1930 is found by the commission to be compensatory for the duty on carbonized noils and carbonized wool used in the manufacture of wool-felt hat bodies in the United States. In addition to this necessary compensatory duty, the excess of the domestic cost over the foreign cost of wool-felt hat bodies is 73 cents per pound.

Wool-felt Hat Bodies, Hoods, Forms, and Shapes, if Pulled, Stamped, Blocked, or Trimmed.

9. Under the tariff act of 1930, wool-felt hat bodies, if pulled, stamped, blocked, or trimmed (this includes finished hats, bonnets, caps, berets, and similar articles), are subject to an additional duty above that on the hat bodies of 25 cents per article. The ascertainment of the additional duty which may be necessary to equalize do-

mestic costs with costs in the principal competing country requires a comparison of the costs in the two countries of converting hat bodies into more advanced or finished conditions by the processes mentioned.

10. As a group, the imported wool-felt hats which have been subjected to these processes in Italy are like or similar to the wool-felt hats similarly converted in the United States, for the purposes of cost comparison under section 336.

11. Costs of conversion ascertained in accordance with section 336:

(A) The cost in the United States of converting wool-felt hat bodies by pulling, stamping, blocking, or trimming, was $2.95 per dozen, or 24.6 cents each, for the period covered by the investigation. The corresponding cost of conversion in the principal competing country, as evidenced by the difference between the invoice prices of wool-felt hat bodies and wool-felt hats which have been subjected to such conversion, was $1.57 per dozen, or 13.1 cents each, and the difference in such costs was $1.38 per dozen, or 11.5 cents each.

(B) The difference in cost of transportation is not a factor in determining the additional duty on hats subjected to these processes, because such difference is approximately the same for them as for hat bodies, and is equalized, along with the cost of production, by the duty on hat bodies found necessary in this report, which duty is applicable as well to hats subjected to these processes.

(C) No other relevant factors constituting an advantage or a disadvantage in competition were disclosed in the course of this investigation.

CONCLUSIONS

The commission finds it shown by the investigation: (a) That the duties expressly fixed by statute; namely, on bodies, hoods, forms, and shapes, for hats, bonnets, caps, berets, and similar articles, manufactured wholly or in part of wool felt, 40 cents per pound and 75 per cent ad valorem; and, in addition thereto, on all the foregoing, if pulled, stamped, blocked, or trimmed (including finished hats, bonnets, caps, berets, and similar articles), 25 cents per article, do not equalize the differences in costs of production, including transportation and delivery to the principal market in the United States, of the domestic articles and of the like or similar foreign articles produced in the principal competing country;

(b) That the specific duty of 40 cents per pound approximately compensates the domestic producer for the duties levied on the raw materials; and

(c) That a decrease in the ad valorem rate of duty of 20 per cent ad valorem is necessary to equalize such difference, and that the difference in costs of pulling, stamping, blocking, or trimming, is such as to warrant a decrease in the additional duty per article by the maximum amount permitted by law; namely, 12½ cents per article;

(d) That the rates of duty necessary to equalize such differences, within the limits permitted under the statute, are as follows: On bodies, hoods, forms, and shapes, for hats, bonnets, caps, berets, and similar articles, manufactured wholly or in part of wool felt, 40 cents per pound and 55 per cent ad valorem, and, in addition thereto, on all the foregoing, if pulled, stamped, blocked, or trimmed (in-

cluding finished hats, bonnets, caps, berets, and similar articles), 12½ cents per article.

Respectfully submitted,

HENRY P. FLETCHER,
Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
JOHN LEE COULTER,
ALFRED P. DENNIS,
EDGAR B. BROSSARD,
LINCOLN DIXON,
Commissioners.

SUMMARY OF INFORMATION OBTAINED IN THE INVESTIGATION WITH RESPECT TO WOOL-FELT HATS

HAT BODIES AND FINISHED HATS

Rates of Duty.

In the tariff act of 1922, wool-felt hat bodies and hats were not specifically mentioned but were dutiable at the rates provided for clothing and articles of wearing apparel, not knit or crocheted, wholly or in chief value of wool. The rates applicable to wool-felt hat bodies and hats provided in paragraph 1115 of the tariff act of 1922 follow:

Valued at—

Not over $2 per pound—24 cents per pound plus 40 per cent ad valorem.
Over $2, not over $4 per pound—30 cents per pound plus 45 per cent ad valorem.
Over $4 per pound—45 cents per pound plus 50 per cent ad valorem.

The bulk of the imports of wool-felt hat bodies and hats came in under the lowest of these rates.

The provisions of the act of 1930 are as follows:

Paragraph 1115 (b). Bodies, hoods, forms, and shapes, for hats, bonnets, caps, berets, and similar articles, manufactured wholly or in part of wool felt, 40 cents per pound and 75 per centum ad valorem; and, in addition thereto, on all the foregoing, if pulled, stamped, blocked, or trimmed (including finished hats, bonnets, caps, berets, and similar articles), 25 cents per article.

Geneal Status of the Industry.

The wool-felt hat industry is divided into two branches, which may briefly be called the hat body and the hat finishing branches. The first branch makes primary products, starting with the raw material, which is a mixture of wool noils and raw wool; some manufacturers of this branch also finish hats. The imports consist chiefly of hat bodies. The greater number of the hat bodies produced domestically and the large number imported are made into finished hats by concerns engaged exclusively in that business.

The manufacture of wool-felt hat bodies in the United States is confined almost exclusively to Massachusetts, New York, and Pennsylvania. Production in Massachusetts is largely concentrated at Amesbury and Haverhill; in New York at Beacon; and in Pennsylvania at and around Reading. Most domestic manufacturers turn out bodies for both men's and women's hats. Those for men's hats are usually made into finished hats by the body makers, but most of those for women's hats are sold to hat finishers.

The hat-finishing industry is located largely in New York City. The manufacturers employ a considerable labor force, part of it highly skilled. The New York finishers for the most part sell directly to the retail trade and keep in direct touch with changes in demand.

In recent years there has been a great vogue for felt hats for women's wear. Before 1923 the industry in the United States, and apparently also in Europe, was engaged largely in producing cheap felt hats for men and boys. The demand for these hats in the United States tended to decline because of the growing preference for the more expensive fur-felt hats. The demand for women's wool-felt hats in most years was of minor importance, and they were worn only during the fall and winter season. In 1923, however, bobbed hair came into fashion for women, and with it the year-round demand for small, close-fitting headdress. The new demand was met in the higher price ranges by fur felts and in the lower price ranges by wool felts. The result was a considerable increase in domestic production of wool-felt hat bodies and a very large increase in the imports of such hat bodies.

Production in the United States.

Hat bodies.—All available evidence seems to indicate that for the decade preceding 1923 the production of wool-felt hat bodies in the United States had been diminishing. But with the beginning of the vogue for felt hats for women's wear the course of production of bodies for women's wool-felt hats turned upward. This is shown by the following statistics:

TABLE 1.—*Production of wool-felt hat bodies in the United States in specified years*

	1923 [1]	1925 [1]	1927 [1]	1929 [2]
	Dozens	*Dozens*	*Dozens*	*Dozens*
Total production	513,000	558,000	755,000	978,000
Bodies sold as such	59,000	185,000	379,000	[3] 544,000
Bodies made into finished hats by body makers, total	454,000	373,000	376,000	[3] 434,000
Men's	139,000	142,000	189,000	247,000
Women's and children's	315,000	231,000	187,000	[3] 187,000

[1] Source: Reports of Bureau of the Census, Department of Commerce; revised figures.

[2] Source: Reports sent direct to the Tariff Commission from 13 primary producers. These showed a total production of 977,903 dozen hat bodies, of which 730,913 dozens were for women and 246,990 dozens for men. The last mentioned were finished into hats in the mills. For 1929 the Bureau of the Census did not report production but showed shipments and deliveries totaling 900,320 dozens, of which 500,516 dozens were bodies; 172,193 dozens, women's finished hats; and 227,611 dozens, men's finished hats.

[3] Of the 730,913 women's hat bodies actually produced, it is estimated, on the basis of the census data for sales, that the mills manufactured about 544,000 dozens to the body stage and about 187,000 dozen finished hats.

As will be seen, the increase in production was much less than the increase in imports from Italy and much less than the increase in production in Italy.

Domestic production probably declined in 1930, owing to general business conditions, overproduction in the Italian industry, and the large number of foreign hat bodies thrown on the market by reason of withdrawals from bonded warehouse in anticipation of the increase in duty.

Finished hats.—The exact production in the United States of finished wool-felt hats can not be given, as no statistics of the wool-felt hat-finishing industry are available. In 1929 the body makers sold about 500,000 dozen bodies and 400,000 dozen finished hats. In the same year imports for consumption of wool-felt hat bodies amounted to 3,383,000 dozens. Assuming that all the bodies imported or sold by body makers were made into finished hats in 1929, the total domestic output of finished wool-felt hats in that year was 4,283,000 dozens, of which 400,000 dozens were finished by body makers, and 3,883,000 dozens by hat finishers.

Imports.

Table 2 shows imports for consumption of wool-felt hat bodies and hats in 1928 (the first year in which these were separately recorded), in 1929, and in 1930.

Table 3 shows imports for consumption of wool-felt hat bodies and hats in 1929, by countries of origin.

TABLE 2.—*Wool-felt hat bodies and hats; imports for consumption, 1928–1930*

	Quantity		Value	Value per dozen	Value per pound
	Dozens	Pounds			
Wool-felt hat bodies:					
1928	2,279,168	4,361,519	$6,698,456	$2.939	$1.536
1929	3,382,516	6,294,726	9,167,932	2.710	1.456
1930 (Jan. 1 to June 17)	2,134,441	3,911,417	5,243,962	2.457	1.341
1930 (June 18 to Dec. 31)	198,411	379,118	403,560	2.034	1.064
Wool-felt hats:					
1928	217,299	399,252	743,768	3.423	1.863
1929	112,574	225,758	466,569	4.145	2.067
1930 (Jan. 1 to June 17)	14,962	26,925	65,444	4.374	2.431
1930 (June 18 to Dec. 31)	1,083	1,531	10,503	9.691	6.860

TABLE 3.—*Wool-felt hat bodies and hats; imports for consumption, by countries, 1929*

Imports from—	Quantity		Value	Value per dozen	Value per pound
	Dozens	Pounds			
Wool-felt hat bodies:					
Italy	2,241,645	4,012,321	$5,371,930	$2.396	$1.339
Germany	475,740	970,604	1,526,062	3.208	1.572
France	336,860	668,779	1,202,122	3.569	1.797
Czechoslovakia	113,555	245,004	485,547	4.276	1.982
United Kingdom	130,087	239,480	349,650	2.688	1.460
All other countries	84,629	158,538	232,621	2.749	1.467
Total	3,382,516	6,294,726	9,167,932	2.710	1.456
Wool-felt hats:					
Italy	40,707	85,952	161,609	3.970	1.880
Germany	5,432	10,226	21,439	3.947	2.097
France	[1] 58,832	115,451	238,164	4.048	2.063
Czechoslovakia	332	480	1,354	4.078	2.821
United Kingdom	6,440	12,281	36,829	5.719	2.999
All other countries	831	1,368	7,174	8.633	5.244
Total	112,574	225,758	466,569	4.145	2.067

[1] An analysis of invoices made by the commission disclosed that very few finished wool-felt hats were actually imported from France. Approximately 50,000 dozens out of the recorded 58,832 dozens should have been classified as hat bodies.

Principal Competing Country.

The foregoing table indicates that Italy is the principal competing country in wool-felt hat bodies, and that France is the chief source of imports of finished hats. But the published figure shown for imports of hats from France is in error. An analysis of consular invoices of imports made by the commission disclosed that through an error in classification, at least 50,000 dozen hat bodies from France were recorded as hats. It is, therefore, evident that Italy is the principal competing country for wool-felt hats as well as hat bodies.

Italy is not only the largest source of imports of wool-felt hat bodies entering the United States, but it is much the largest producer among the countries of Europe. The vogue for wool-felt hats for women's wear caused a greater expansion of the industry in Italy than in any other country. The center of the industry there is Monza, near Milan. The Italian output of hat bodies practically doubled between 1924 and the end of 1927 [1] and expanded still more rapidly in 1928. In the summer of 1928 the industry employed 6,000 workers and was turning out 200,000 wool-felt hat bodies a day. The women workers employed in the industry were getting about $1 per day and the men from about $2.50 to $3.00 per day.[2]

Exports.

Exports of wool-felt hats amounted to 15,310 dozens, valued at $223,755, in 1927, and to 35,305 dozens, valued at $409,967, in 1929.

HAT BODIES

Comparability of Imported and Domestic Hat Bodies.

Representative samples of wool-felt hat bodies were obtained from both importers and domestic manufacturers. It was found, however, neither practicable nor necessary to ascertain and compare the exact costs of specific samples. It was possible instead to establish a sufficient degree of comparability between a large group of domestic hat bodies and the entire imports of hat bodies from Italy as a satisfactory basis for cost comparisons.

With the exception of one manufacturer in the United States, whose product in 1929 was of higher grade and comparable rather with the imports from France and certain other countries than with those from Italy, it was found that almost the entire output of the domestic concerns consisted of hat bodies substantially comparable, as a group, with those imported from Italy. The Italian manufacturers distinguish three grades, but about 85 per cent of the imports into the United States consist of the third grade, and practically all the remainder of the second grade, almost none of the first grade being imported from that country.

The producer above mentioned, who engaged in 1929 in the manufacture of hats of a higher grade, began in 1930 the production of hats of the lower grade comparable with the Italian hats, and his costs in that year, adjusted to reflect the changes in the prices of raw material, which took place in 1929 and 1930, have been included in the average domestic costs.

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[1] Consular report submitted by Vice Consul J. F. Huddleston, Milan, Feb. 10, 1928.
[2] Industrie und Handelszeitung, No. 163, July 15, 1928.

Costs of Production.

Basis of domestic costs.—The commission ascertained detailed costs of production from seven domestic manufacturers who together produced 54 per cent of the total output (in pounds) of wool-felt hat bodies in the United States in 1929.

Basis of foreign costs.—The cost of production of wool-felt hat bodies in Italy, as defined in section 336 (h) (4), was not readily ascertainable, and the commission used as evidence thereof the invoice prices of imported hat bodies. The commission obtained from five representative importers, who together imported 523,000 dozen hat bodies in 1929, the actual invoice prices of the wool-felt hat bodies imported by them during that year. The weighted average of these prices was $1.29 per pound for third grade, $1.72 for second grade, and $1.34 for the two grades combined. It was found that this figure of $1.34 was identical with the average dutiable value per pound of all imports for consumption from Italy during 1929, as reported by the customs officials.

Principal Market and Costs of Transportation.

New York City is the principal market in the United States for both domestic and imported wool-felt hat bodies. As already stated, the hat finishing industry is largely concentrated in that city.

The average cost of transportation from all the domestic plants covered by the investigation to New York City was ascertained from their records. This average in 1929 was 2.5 cents per pound. From the five representative importers above mentioned, the commission obtained the costs of delivery of the hat bodies imported by them from the centers of production in Italy to New York, including ocean freight and insurance, and landing charges at the port of New York. The total of these costs averaged 7 cents per pound.

Other Relevant Factors in Competition.

The commission finds that in so far as there are factors, other than costs of production and transportation, which constitute advantages or disadvantages in competition, as between domestic and foreign producers in the sale of wool-felt hat bodies in the United States, these substantially offset one another, so that there is no net advantage on the one side or the other.

Italian manufacturers have the advantage of a larger total output than the domestic manufacturers produce, so that they are better able to fill expeditiously orders of large magnitude. Domestic manufacturers have the offsetting advantage of proximity to the domestic hat-finishing industry, and are consequently able to adapt their production to the frequent style changes, especially in regard to color.

Comparison of Domestic and Foreign Costs of Wool-felt Hat Bodies.

The following table shows the comparison of the domestic and foreign costs of wool-felt hat bodies delivered to the principal market as thus ascertained by the commission. The difference in costs is found to be $1.13 per pound.

TABLE 4.—*Wool-felt hat bodies; comparative costs of domestic and Italian bodies delivered to New York*

	Per pound	
Domestic costs:		
Cost at factory—		
Material	$1.54	
Direct labor	.46	
Miscellaneous and overhead	.44	
Interest on investment (imputed at 6 per cent)	.075	$2.515
Transportation to New York		.025
Total		2.54
Foreign costs:		
Factory cost as evidenced by invoice value of imports	1.34	
Transportation and other charges to New York	.07	
Total		1.41
Excess of domestic over foreign costs		1.13
Deduct compensatory duty		.40
Excess of domestic costs to be equalized by ad valorem duty		.73
Dutiable value of imported hats		1.34

The Specific Compensatory Duty.

That portion of the duty which is based on the weight of the hats; namely, 40 cents per pound, is intended to be compensatory for the duty on carbonized noils and carbonized wool, the principal materials. The duty on carbonized noils is 30 cents per pound and on carbonized wool, 37 cents per pound and 20 per cent ad valorem. On the average the domestic manufacturers, as ascertained from four concerns, used in 1929, 88 per cent carbonized noils and 12 per cent carbonized wool. The weight of the bodies obtained from the raw material was found to equal 80 per cent of the weight of the material. From these figures it appears that the specific duty of 40 cents per pound provided in the tariff act of 1930 is in fact compensatory for the duty on the raw materials.

Since the difference in costs of production and delivery of wool-felt hat bodies is $1.13 per pound, the amount of this difference above the compensatory duty, and to be equalized by the ad valorem part of the duty, is 73 cents per pound.

ADVANCED OR FINISHED HATS

Basis of Cost Comparison.

Under the tariff act of 1930, the specific compensatory rate of 40 cents per pound and the ad valorem rate of 75 per cent apply not only to hat bodies as such, but also to such bodies when they have been subjected to further processes, putting them into a more advanced or finished form. In addition the more advanced or finished hats are subject to the specific duty of 25 cents per article. This additional duty applies to the hat bodies "if pulled, stamped, blocked, or trimmed (including finished hats, bonnets, caps, berets, and similar articles)." In order to determine whether this additional duty of 25 cents per article equalizes the difference between domestic and foreign costs, it is necessary to ascertain the cost of the additional processes which distinguish the more advanced or finished hats from the hat bodies. In other words, it is necessary to ascertain for both the domestic product and the foreign product, the difference between the cost of hat bodies and the cost of the more advanced or finished hats.

The commission finds that the more advanced or finished hats imported from Italy are like or similar to those produced in the United States by the makers of hat bodies, and cost comparisons are made on that basis. The costs of the advanced or finished hats made in the United States by the concerns which do not manufacture hat bodies are not taken into consideration, for the reason that their product is extremely diversified and scarcely comparable with the imported product.

Principal Market and Transportation.

The principal market for advanced or finished wool-felt hats in the United States is New York. The cost of transportation of advanced or finished hats from the domestic plants to the principal market is substantially the same as that of transporting hat bodies, and the same is true of the advanced or finished hats imported from Italy. The difference in transportation costs on advanced or finished hats is therefore equalized, along with other differences in costs, by the ad valorem duty, and does not need to be taken into consideration in determining the specific duty on the advanced or finished hats.

Comparative Costs of Conversion.

The commission ascertained from three plants in the United States, which make hat bodies and convert them into advanced hats, the costs of such conversion. The costs averaged $2.95 per dozen, which included a cost for materials of $0.95; direct labor, $1.36; and miscellaneous and overhead expenses, $0.64.

Costs of converting wool-felt hat bodies into advanced or finished hats could not be ascertained readily from the principal competing country. The commission therefore has taken as evidence of conversion costs in Italy the difference between the weighted average of invoice prices of wool-felt hat bodies and of finished wool-felt hats imported in 1929 from that country. As shown by reports of the Department of Commerce, the average value of wool-felt hat bodies imported from Italy in 1929 was $2.40 per dozen. (As shown in Table 4, the average value per pound was $1.34, and this was the same as the average value per pound of the imports of five large importers whose records were examined in detail by the Tariff Commission.) The average value of finished wool-felt hats imported from that country in that year was $3.97 per dozen, according to the same source. The difference between the two was $1.57 per dozen.

Relation of Cost Difference to Duty.

The cost of conversion in the United States, as above shown, being $2.95 per dozen and the cost of conversion in Italy (on the basis of invoice prices) being $1.57 per dozen, there is a cost difference of $1.38 to be equalized by the duty. This is equivalent to 11.5 cents per article.

It may be noted in connection with the duty on wool-felt hats subjected to pulling, stamping, blocking, or trimming that apart from any additional specific duty, the cost difference in respect to these processes is in part equalized by the fact that the ad valorem duty applies to the additional value incorporated in the product by these processes as well as to the value of the hat bodies.

APPENDIX

A PROCLAMATION

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

DECREASING RATES OF DUTY ON WOOL-FELT HATS AND BODIES THEREFOR

Whereas, under and by virtue of section 336 of Title III, Part II, of the act of Congress approved June 17, 1930, entitled "An act to provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, to protect American labor, and for other purposes," the United States Tariff Commission has investigated the differences in costs of production of, and all other facts and conditions enumerated in said section with respect to bodies, hoods, forms, and shapes, for hats, bonnets, caps, berets, and similar articles, manufactured wholly or in part of wool felt, and hats, bonnets, caps, berets, and similar articles, made wholly or in part therefrom, finished or unfinished, being wholly or in part the growth or product of the United States and of and with respect to like or similar articles wholly or in part the growth or product of the principal competing country;

Whereas in the course of said investigation a hearing was held, of which reasonable public notice was given and at which parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard;

Whereas the commission has reported to the President the results of said investigation and its findings with respect to such differences in costs of production;

Whereas the commission has found it shown by said investigation that the principal competing country is Italy, and that the duties expressly fixed by statute do not equalize the differences in the costs of production of the domestic articles and the like or similar foreign articles when produced in said principal competing country, and has specified in its report the decreases in the rates of duty expressly fixed by statute found by the commission to be shown by said investigation to be necessary to equalize such differences; and

Whereas in the judgment of the President such rates of duty are shown by such investigation of the Tariff Commission to be necessary to equalize such differences in costs of production.

Now, therefore, I, Herbert Hoover, President of the United States of America, do hereby approve and proclaim the following rates of duty found to be shown by said investigation to be necessary to equalize such differences in costs of production.

A decrease in the rates of duty expressly fixed in paragraph 1115(b) of Title I of said act on bodies, hoods, forms, and shapes,

for hats, bonnets, caps, berets, and similar articles, manufactured wholly or in part of wool felt, from 40 cents per pound and 75 per cent ad valorem to 40 cents per pound and 55 per cent ad valorem;

And a decrease in the rate of duty expressly fixed, in addition thereto, in paragraph 1115(b) on all the foregoing, if pulled, stamped, blocked, or trimmed (including finished hats, bonnets, caps, berets, and similar articles) (within the limit of total decrease provided for in said act), from 25 cents per article to 12½ cents per article.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington this sixteenth day of March in the year of our Lord one thousand nine hundred and thirty-one, and of the Independence of the United States of America the one hundred and fifty-fifth.

[SEAL.] HERBERT HOOVER.

By the President:

HENRY L. STIMSON,
Secretary of State.

○

UNITED STATES TARIFF COMMISSION

REPORT

ON

CIGAR-WRAPPER TOBACCO

UNDER THE GENERAL PROVISIONS
OF SECTION 332, PART II, TITLE III
TARIFF ACT OF 1930

REPORT No. 16
SECOND SERIES

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CONTENTS

TEXT

	Page
Summary	1
Description	2
Tariff history	3
The domestic industry—	
Present status of the industry	4
Development of the industry	4
Source of imports	9
Imports from Sumatra and Java	10
Imports from Cuba	13
Comparative importance of imports and domestic production	13
Cigar industry in its relation to wrapper tobacco—	
Classes of cigars and wrapper used on each	14
Factors affecting development of cigar industry	15
Relation between the production of filler and binder leaf and the duty on wrapper tobacco—	
Relative size of the filler and binder industries as compared with the wrapper industry	17
Production and marketing—	
Production and marketing of domestic wrapper	18
Prices	23
Production and marketing of imported wrapper—	
Production of Sumatra tobacco	23
Production of Java tobacco	25
Marketing of Sumatra and Java tobacco in the Netherlands	26
Production and marketing of Cuba leaf	27
Conditions of competition between domestic shade-grown and Sumatra wrapper tobacco—	
Natural factors	29
Labor supply	32
Comparison of methods of production in Sumatra and in the cigar wrapper producing sections of the United States	33
Organization of the wrapper tobacco industries in Sumatra and in the United States—	
Large Dutch companies in Sumatra	33
Large-scale organization in the United States industry	34
Discussion of cost data for Sumatra wrapper and for domestic shade-grown leaf	35
Factors important to cigar makers in selecting types of imported and domestic cigar-wrapper leaf—	
Sumatra and Florida shade grown	36
Sumatra, Cuba, and Connecticut Valley shade grown	37
Java and Connecticut Valley shade grown	38
Administrative provisions relating to the duty on wrapper tobacco	38
Appendix. Rates of duty—Leaf tobacco suitable for cigar wrapper	41
Bibliography	43

TABLES

No.		
1.	Rates of duty on wrapper tobacco, 1883–1930	3
2.	Acreage, yield, production, price, and farm value, 1928, 1929, and 1930	6
3.	Production of shade-grown cigar-wrapper tobacco in the Connecticut Valley, 1900–1918	8

No. Page

4. Production of cigar-wrapper tobacco under shade in the Connecticut Valley, 1922–1930 ---- 9
5. Production of cigar-wrapper tobacco under shade in Georgia and Florida, 1922–1930 ---- 9
6. General imports of leaf tobacco suitable for cigar wrappers, calendar years 1923–1929 ---- 10
7. Summary of production of Sumatra tobacco and value in the Netherlands, 1864–1928 ---- 10
8. General imports into the United States of tobacco suitable for cigar wrappers from the Netherlands and the Dutch East Indies, 1880–1929 ---- 11
9. Shipments of Sumatra and Java tobacco from the Netherlands, including exports and entrepôt trade, totals for the years 1925–1929, and by principal destinations for 1929 ---- 12
10. Exports of stemmed and unstemmed tobacco from Cuba to all countries and to the United States, 1909–1929 ---- 13
11. Changes in internal-revenue taxes on cigars ---- 16
12. Representative packing of 1,000 bales of Connecticut shade-grown tobacco, 1928 ---- 22
13. Average yields obtained by the five principal tobacco growers in Sumatra compared with average yields in the Connecticut Valley and Florida-Georgia shade-grown areas of the United States, 1925–1929 ---- 31
14. Outstanding capital in 1928 and dividends declared by the five principal tobacco producers in Sumatra, 1925–1928 ---- 34
15. Estimated average costs of Sumatra tobacco compared with average selling price, 1910–1926 ---- 35

ILLUSTRATIONS

Fig.

1. Map showing location of types of cigar tobacco, 1928 ---- 5
2. Fields of wrapper tobacco under cloth shade in the Connecticut Valley ---- 18
3. Tobacco-transplanting crew in Florida wrapper tobacco field ---- 19
4. "Tying up" Florida wrapper tobacco ---- 19
5. Priming Florida cigar-wrapper tobacco ---- 20
6. Interior view of a cigar-wrapper tobacco curing barn ---- 21
7. Wilt of tobacco plants resulting from the invasion of the roots by black shank ---- 30
8. Comparison of strains of Florida wrapper tobacco nonresistant and resistant to black shank ---- 31

NOTE.—In the preparation of this report the commission had the services of Carleton K. Lewis, of the agricultural division of the commission's staff, and of others.

CIGAR-WRAPPER TOBACCO

SUMMARY

Of the cigars produced in the United States, about half are wrapped with imported wrapper leaf originating chiefly in the Dutch East Indies. In only a few restricted areas of the United States are the soil and climate favorable to the growing of wrapper leaf of the requisite color, flavor, burn, and size. These areas lie in the Connecticut Valley, embracing a number of counties of Connecticut and Massachusetts, and in several border counties of the States of Florida and Georgia.

Economically the growing of wrapper tobacco differs from other branches of American tobacco production in that it entails intensive cultivation, requiring heavy investments of capital and large outlays for labor, with consequent high-production costs and high prices. Hand labor is largely employed in cultural operations as well as in harvesting, sorting, and packing. As the tobacco plant rapidly exhausts certain elements in soil fertility, large applications of fertilizer must be made annually. For shade-grown tobacco, constituting the bulk of the domestic production, the cost is further increased by outlays for tents made of specially woven cotton cloth. Some 12,000 acres planted in wrapper leaf are shaded by these tents.

Within the last half century the Dutch East Indies, chiefly Sumatra and Java, have become the world's principal source of high-grade leaf tobacco for cigar wrappers. These islands have the natural advantages of a rich soil and a tropical climate, and in addition an abundance of cheap labor supplied by native Javanese and by Chinese coolies. These natural advantages have been energetically exploited by Dutch capitalists organized in large companies. Combining among themselves, these companies have been able to introduce the economies of large-scale operation, to standardize products, and to enforce monopolistic policies.

To offset the strong competitive position of the Dutch companies, American growers have had the benefit of a continuously high protective duty. Beginning with 1897, the duty on unstemmed wrapper tobacco under the general tariff was $1.85 per pound, the ad valorem equivalent being 147 per cent. Subsequently, up to 1922, it ranged between 134 and 263 per cent, with an average of 177 per cent. Under the act of 1922, the duty was fixed at $2.10 per pound, equivalent to about 91 per cent ad valorem. The act of 1930 increased this rate to $2.27½ per pound. Computing on the basis of 1.8 pounds of Sumatra leaf to wrap 1,000 cigars, the present duty on unstemmed wrapper amounts to $4.09½ per thousand cigars for the bulk of the imports. Seldom in our tariff history has any commodity had the benefit of continuous protection at so high a rate.

Under the stimulus of the protective policy, the production of domestic wrapper tobacco, particularly of the more expensive types grown under shade, has rapidly expanded. In 1901 only about 50 acres—and these in the Connecticut Valley—were under shade. Since then the increase has been without important interruption,

until in 1929 the shaded area in the United States comprised 12,600 acres, producing more than 14,000,000 pounds of wrapper leaf. With the growth of the industry, consolidation and integration have steadily proceeded until at the present time the major part of the production is in the hands of a few strongly organized corporations.

Sumatra, producing the finest grade of wrapper tobacco without artificial shade, is by far the greatest factor in imports of wrapper leaf. The imported product is used principally to cover cigars manufactured of domestic filler and binder leaf, types which make up more than 90 per cent of domestic cigar tobacco. Imports of Sumatra wrapper are thus supplementary to rather than competitive with most of the domestic cigar tobacco. Domestic filler and binder is grown largely in Pennsylvania, Ohio, Indiana, Wisconsin, Minnesota, and New York, sections which produce very little wrapper. The Connecticut Valley produces both binder and wrapper.

Among growers as well as among domestic cigar manufacturers there is a division of interest in regard to the tariff on cigar wrapper. A majority of the domestic growers furnish tobacco for foreign wrapped cigars, and they, as well as the manufacturers of such cigars, are interested in the continuance of imports. Cigar manufacturers using domestic wrapper, on the other hand, find imports of foreign leaf indirectly competitive with their product. Sumatra, Java, and Havana leaf is used to wrap about 3,200,000,000 cigars out of the total production of 6,500,000,000. To establish their brands on the market, makers of foreign-wrapped cigars have expended large sums in advertising. The wrapper gives these brands their characteristic appearance, and manufacturers naturally desire the continuance of large imports and have asked for a lower rate of duty. The Amsterdam market, where the large American cigar manufacturers and brokers are firmly established, furnishes a dependable source of supply for a uniform and well-standardized product.

DESCRIPTION

The ordinary cigar of the present day contains three distinct kinds of tobacco—the filler leaf, the binder leaf, and the wrapper. The small pieces of tobacco making up the filler are rolled up in the binder leaf, the cigar is shaped, and then finished off with a wrapper. In the course of the history of cigar manufacture there has come to be a demand for a special leaf for finishing cigars. Although the wrapper is in weight but a small part of the cigar, sometimes less than one-tenth, it is an important factor in determining its salability. It is the part of the cigar which the smoker sees, and it is the part that comes into contact with his mouth.

The best wrappers are either neutral in taste or of a flavor that blends with the tobacco making up the rest of the cigar. They burn evenly, have a satiny smoothness, are uniform in color, are free from large veins, and are sufficiently strong and elastic to prevent easy breaking. The number of wrappers to be obtained per pound of leaf,[1] the grading, and the dependability of supply are all factors of interest to the manufacturer in making his selection of the leaf to be used in covering his cigar.

[1] Less than 2 pounds of some types of wrapper leaf are required for 1,000 cigars, whereas of others from 3 to 4 pounds are required.

Most of the wrapper tobacco used by domestic manufacturers is grown for that purpose in the United States, in Connecticut and Georgia under artificial shade, or is specially imported from Sumatra and Java. Clear Havanas and some few others are still wrapped with leaf selected from the same tobacco of which the rest of the cigar is made.

TARIFF HISTORY

Cigar-wrapper tobacco was first specifically provided for in the tariff act of 1883, which made unstemmed wrapper tobacco dutiable at 75 cents per pound and stemmed wrapper dutiable at $1 per pound. The rate on stemmed wrapper has always been a nominal one; the danger of increased loss through breakage has caused imports to be small. Since December 27, 1903, when the reciprocity treaty became effective, the rates of duty on imports from Cuba have been 20 per cent less than the general rates. The history of the tariff changes since 1883 is given in the following table:

TABLE 1.—*Rates of duty on wrapper tobacco, 1883-1930* [1]

Act of—	Unstemmed cigar wrapper	Stemmed cigar wrapper	Act of—	Unstemmed cigar wrapper	Stemmed cigar wrapper
	Per pound	*Per pound*		*Per pound*	*Per pound*
1930	$2.27½	$2.92½	1897	$1.85	$2.50
1922	2.10	2.75	1894	1.50	2.25
1921	2.35	3.00	1890	2.00	2.75
1913	1.85	2.50	1883	.75	1.00
1909	1.85	2.50			

[1] See appendix for complete tabulation of provisions for wrapper tobacco since 1883.

The first special provision for wrapper tobacco, that of the act of 1883, reads as follows:

> PAR. 246.—Leaf tobacco, of which 85 per cent is of the necessary size and of the necessary fineness of texture to be suitable for cigar wrappers, and of which more than 100 leaves are required to weigh a pound, if not stemmed, 75 cents per pound; if stemmed, $1 per pound.

That almost every tariff act since 1883 has brought changes in the provisions for wrapper tobacco is evidence of the difficulties encountered in administering the law. Thus the act of 1890 carried the provision that "if any portion of any tobacco imported in any bale, box, or package, or in bulk shall be suitable for cigar wrappers, the entire quantity of tobacco contained in such bale, box, or package, or bulk shall be dutiable * * *" (at the wrapper rates). In later acts, an allowance was provided of 15 and then of 35 per cent before the whole of a mixed bale became dutiable as wrapper tobacco.

As a means of lessening the difficulties of administering the tariff, efforts have been made to improve the definitions of wrapper tobacco. The act of 1890 omitted the phrases of the act of 1883 "requisite size," and "necessary fineness of texture to be suitable for cigar wrappers." It dropped also the phrase, "of which more than 100 leaves are required to weigh a pound," which had constituted the only physical test ever provided in a tariff act for wrapper tobacco. The act of 1894 defined wrapper tobacco as "that quality of leaf tobacco known commercially as wrapper tobacco"; the act of 1897, "that quality of leaf tobacco which is suitable for cigar wrappers." The definition

used in the act of 1930 first appeared in the act of 1913. According to this definition, wrapper tobacco is "that quality of leaf tobacco which has the requisite color, texture, and burn, and is of sufficient size for cigar wrappers."

Difficulties in the administration of the provisions for wrapper have arisen principally in assessing duties on mixed bales. Sumatra leaf, the principal wrapper imported, is packed in full wrapper bales, whereas Havana leaf is often packed in mixed bales of filler and wrapper. Cuba furnishes both filler and wrapper tobacco in important quantities. The wrapper is used by the "Clear Havana" manufacturers in the United States.[2]

Since 1883, the general rate on unstemmed wrapper has ranged between 75 cents and $2.35 per pound, with ad valorem equivalents of 84 to 263 per cent, usually well above 100 per cent. The ad valorem equivalents of the rates on imports from Cuba have ranged from 64 to 95 per cent.

THE DOMESTIC INDUSTRY

Present status of the industry.—The domestic production of wrapper tobacco is confined to a few areas where the soil and climate are exceptionally favorable to the growing of tobacco of the requisite color, flavor, burn, and size. The great bulk of the domestic supply is now produced under artificial shade in the Connecticut Valley of Connecticut and Massachusetts and in the border counties of Florida and Georgia. Before the establishment of the shade industry in the period 1900–1910, a considerable quantity of sun-grown (stalk-harvested) tobacco was used for wrapper. In recent years, only local brands of cigars with limited distribution have been wrapped with sun-grown tobacco. Manufacturers in Connecticut, for example, making cigars for local trade, use wrappers graded out of stalk-harvested Havana seed or broadleaf tobacco. A few hundred acres of sun-grown Havana seed tobacco have been harvested by priming, thus increasing the percentage of leaf that can be used for wrapper.

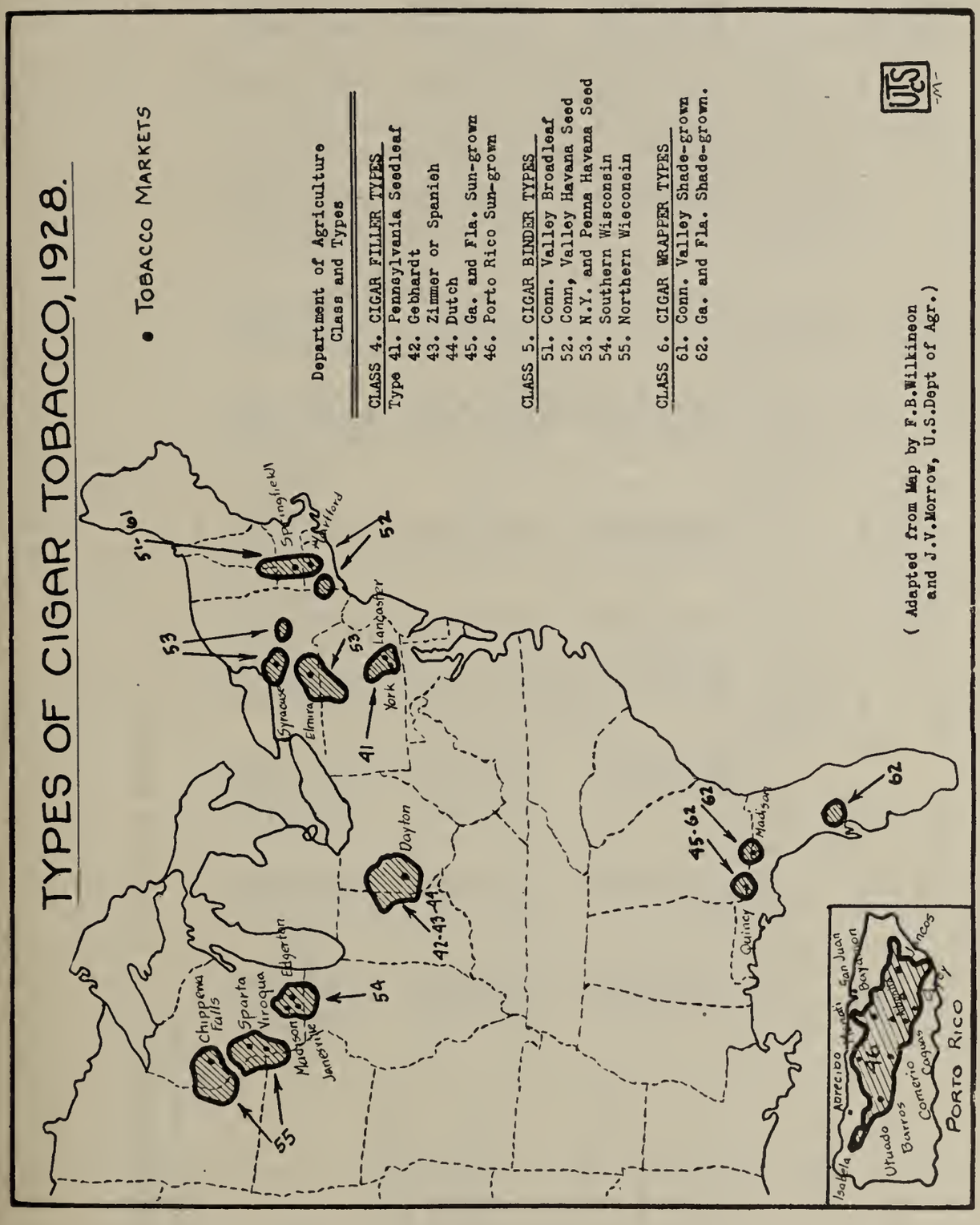
In 1929, 8,700 acres were under shade in the Connecticut Valley; with an average yield of 1,174 pounds per acre, these produced 10,218,000 pounds. Their average farm value was estimated to be about 95 cents per pound, or a total of nearly $10,000,000. In the Florida-Georgia district, centering around Quincy, the area under shade was 3,900 acres, with an average yield of 1,186 pounds per acre, and a total production of 4,626,000 pounds. The average estimated farm value was 55 cents, making a total value of $2,544,000.

Table 2 affords a comparison of the acreage, yield per acre, production, farm price, and total farm value of wrapper with all other types of domestic tobacco produced in the three years, 1928, 1929, and 1930. In 1929, neither the acreage nor the production of wrapper leaf amounted to as much as 1 per cent of the total tobacco grown. But, as cigar wrapper is nearly four times as valuable as any other type, its total farm value amounted to somewhat more than 4 per cent of the total farm value of all of the tobacco grown in the United States.

Development of the industry.—Cigar making began as a household industry in the first quarter of the nineteenth century in the Connecticut Valley. For some years the industry and the growing of

[2] See p. 38 for a discussion of these difficulties and a proposed solution.

tobacco in the valley expanded very slowly. At no time prior to 1801 did the annual production of tobacco exceed 20,000 pounds. The first cigar factories were established in 1810, one at East Windsor and another at Suffield, Conn. Some of the leaf used in these factories was imported from Cuba and Brazil, but early in the century the locally grown tobacco came to be recognized as essentially different from the Virginia leaf and as being peculiarly adapted to cigar manufacture. In 1833 the Maryland broadleaf was introduced into



Connecticut, marking the beginning of the extensive broadleaf or seedleaf tobacco industry, which expanded rapidly in the middle of the last century. About 1870, the Havana leaf, destined to occupy an important place in the cigar-leaf industry of the valley, was introduced. In the early years of the Connecticut industry, the best leaf was selected from the general crop for wrapper tobacco. There is no record of any attempt to grow and pack a specialized type for wrapping. That was to be a later development.

TABLE 2.—*Tobacco: Acreage, yield, production, price, and farm value, 1928, 1929, and 1930*

Class and type name	Acreage			Yield per acre			Production			Price per pound			Farm value		
	1928	1929	1930	1928	1929	1930	1928	1929	1930	1928	1929	1930	1928	1929	1930
	Acres	*Acres*	*Acres*	*Pounds*	*Pounds*	*Pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*Cents*	*Cents*	*Cents*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
United States, all types	1,894,100	2,040,300	2,110,300	725.7	747.3	715.7	1,374,547	1,524,677	1,510,308	20.2	18.8	13.8	277,506	284,876	208,075
Cigar wrapper	12,250	12,800	10,800	964	1,184	1,068	11,806	15,159	11,530	80.0	80.8	83.3	9,445	12,252	9,609
Connecticut Valley shade-grown	8,000	8,700	7,400	867	1,174	1,039	6,936	10,218	7,688	100.0	95.0	95.0	6,932	9,707	7,304
Massachusetts	1,400	1,500	1,400	900	1,196	1,017	1,260	1,794	1,424	100.0	95.0	95.0	1,260	1,704	1,353
Connecticut	6,600	7,200	6,000	860	1,170	1,044	5,676	8,424	6,264	100.0	95.0	95.0	5,672	8,003	5,951
Georgia and Florida shade-grown	3,800	3,900	3,400	1,113	1,186	1,130	4,230	4,626	3,842	55.0	55.0	60.0	2,321	2,544	2,305
Georgia	600	600	600	1,200	1,240	1,248	720	746	749	55.0	55.0	60.0	396	410	449
Florida	3,200	3,300	2,800	1,097	1,176	1,105	3,510	3,880	3,093	55.0	55.0	60.0	1,925	2,134	1,856
Connecticut Valley primed Havana	450	200	----------	1,422	1,575	----------	640	315	----------	30.0	35.0	------	192	1	----------
Massachusetts	50	----------	----------	1,440	----------	----------	72	----------	----------	30.0	------	------	22	----------	----------
Connecticut	400	200	----------	1,420	1,575	----------	568	315	----------	30.0	35.0	------	170	1	----------
Cigar filler	64,450	69,100	71,350	1,094	1,044	1,014	70,513	72,108	72,365	15.1	12.7	11.8	10,630	9,197	8,513
Pennsylvania seedleaf	36,350	38,100	38,950	1,341	1,284	964	48,740	48,920	37,548	13.9	12.0	12.0	6,779	5,870	4,506
Ohio and Indiana (Miami Valley) [1]	26,500	29,300	30,700	757	724	1,070	20,073	21,213	32,842	17.5	13.8	11.0	3,511	2,927	3,613
Georgia and Florida sun-grown	1,600	1,700	1,700	1,062	1,162	1,162	1,700	1,975	1,975	20.0	20.0	20.0	340	395	395
Cigar binder	63,600	61,300	70,750	1,302	1,320	1,313	82,796	80,904	92,919	17.7	20.4	18.6	14,696	16,478	17,263
Connecticut Valley broadleaf	10,800	8,300	12,450	1,404	1,453	1,469	14,162	12,058	18,284	21.0	32.9	30.0	2,974	3,309	5,485
Connecticut Valley Havana seed	13,350	11,600	11,650	1,309	1,509	1,505	17,474	17,505	17,530	24.0	31.4	22.9	4,196	5,503	4,016
New York and Pennsylvania Havana seed	1,450	1,400	1,350	1,283	1,011	985	1,860	1,416	1,330	19.3	15.0	15.0	359	212	200
Southern Wisconsin	22,200	23,500	23,200	1,353	1,264	1,256	30,044	29,705	29,140	13.7	13.4	12.4	4,116	3,980	3,613
Northern Wisconsin	15,800	16,500	22,100	1,219	1,225	1,205	19,256	20,220	26,635	15.8	17.1	14.8	3,051	3,462	3,949
Flue-cured	1,140,200	1,134,700	1,157,200	650	661.8	683.5	740,807	750,899	790,950	17.7	17.9	12.2	130,975	134,488	96,606
Fire-cured	183,800	222,800	233,100	719	821.8	680.2	132,179	183,087	158,559	14.0	13.3	8.4	18,447	24,269	13,282
Air-cured (light)	367,300	462,400	488,400	793	777.1	662.9	291,073	359,316	323,756	30.2	22.6	17.8	87,826	81,320	57,592
Air-cured (dark)	60,500	74,200	76,900	727	820.5	769.6	43,968	60,884	59,185	11.7	10.8	8.5	5,145	6,565	5,037
Miscellaneous	2,000	3,000	1,800	703	1,349	1,190	1,405	2,320	1,044	------	------	------	342	306	173

[1] Gebhardt, Zimmer, and Dutch combined.

Source: Bureau of Agricultural Economics, U. S. Department of Agriculture.

The production of cigar tobaccos developed in other States shortly after its beginning in Connecticut. Within a few years it spread to Lancaster and York Counties, Pa., the Miami Valley in Ohio, the Onondaga and Big Flats area in New York, and the Gadsden County area in Florida.

Cuban tobacco, it is reported, was first introduced into Florida about 1828. Experiments with this tobacco succeeded so well that it soon became one of the staple crops, especially in Gadsden County. A little later, another type, known as the Florida or Florida wrapper, was introduced. Because of its larger yield and the better quality of its leaf, this type was soon in great demand for export to Europe. Production in the State gradually increased up to about 1850 and rapidly during the next decade. By 1860 Gadsden County alone, it is estimated, produced 1,200,000 pounds. Following the Civil War, for a period of some 25 years, disturbed economic conditions led to the discontinuance of the culture of tobacco as a market crop in Florida, but about the year 1889 the industry was revived and in the next decade rapidly expanded.

During this period of rapid expansion, experiments conducted by private growers and by the Florida Agricultural Experiment Station resulted in the dissemination of information concerning fertilizers, suitable types of soil, and the best methods of cultivation and curing. Coincident with the progress of the industry in these respects, the idea of improving the quality of wrapper tobacco through the use of artificial shade was developed. Plants grown under the partial shade of trees were observed to produce thinner leaves better suited for cigar wrapper than plants grown in the open. These observations led, in 1896, to the construction of artificial shade over a quarter of an acre, marking the beginning of the development in this country of specialized types grown primarily for use as cigar wrapper. These types, produced in steadily increasing quantity, soon began to dispute possession of the market with Sumatra wrapper, which had been imported through the Netherlands since about 1883.

At the beginning of the twentieth century, tobacco growers in Connecticut experimented with the growing of wrapper tobacco under cheesecloth shade with results far surpassing expectations. It soon became apparent that the consequent moderation of midday heat, together with the lessening of the spread between day and night temperatures, produced a finer leaf and one more even in texture and color. The shade also stimulated the growth of the plant by conserving moisture. Closing in the field completely with roof and side walls of cloth shut out the moths, most of them night flying, which lay the eggs that hatch into tobacco worms. The heavy expense of hand picking worms was thus obviated. Other changes in the technique of growing tobacco under shade, such as the correction of defects in the cloth used for tents, perfection of cultural practices, and improvement in methods of grading have led to the production of a superior quality of leaf generally recognized by manufacturers.

The development of the industry in the Connecticut Valley prior to our entry into the World War is illustrated in the following table. Beginning in 1900 with only a few acres under shade and a production of two bales, the industry had grown to such an extent that by 1917 nearly 5,900 acres were covered with tobacco tents and production amounted to more than 35,000 bales.

TABLE 3.—*Production of shade-grown cigar-wrapper tobacco in the Connecticut Valley, 1900–1918* [1]

Year	Acres	Bales [2]	Year	Acres	Bales [2]	Year	Acres	Bales [2]
1900		2	1911	1,995	11,970	1915	3,609	20,454
1901	41	240	1912	1,906	11,436	1916	4,939	29,634
1902	720	4,320	1913	1,840	11,040	1917	5,854	35,124
1910	1,000	6,000	1914	2,574	15,444	1918 [3]	6,223	

[1] Mass. Agr. Exp. Sta. Bul. No. 193, p. 161.
[2] A bale contains 150–175 pounds.
[3] See Table 4 for production in later years.

From the beginning the industry was aided by the scientific experiments in plant hybridization and selection carried out by the United States Department of Agriculture and by the several State experiment stations. From time to time seed were obtained from Sumatra and Cuba. It was found that the Cuban and Sumatran varieties of plants, bearing comparatively small, round leaves, with fine veins, were not adapted to the same soil and climatic conditions as the Connecticut Valley varieties, but that the crossing of the broadleaf and Havana seed plants with the Cuban and Sumatran varieties, followed by a rigid selection of seed plants for several generations, produced valuable and improved strains.

In Florida, after experimentation with different varieties under shade, a selection of the Sumatran variety was pronounced the most profitable for wrapper tobacco and was grown almost exclusively for that purpose until about 1906. Then a cross between the Sumatran and Cuban varieties, known as Big Cuba, was developed. The first successful growing of this variety under shade was about 1903. Because of its larger yield and higher percentage of light wrappers, Big Cuba had almost entirely displaced Sumatra by 1906 and continued to be the most important variety grown under shade until 1923. In 1921 the Connecticut Round Tip, a species introduced from Connecticut, began to be grown extensively under cloth shade, but by 1928 both it and Big Cuba were to a large extent superseded by the newly developed black-shank resistant varieties described later in this report.

With increased importations of specialized wrapper leaf from Sumatra and Java and with the development of the domestic shade industry for producing specialized wrapper types, the use of sun-grown cigar wrapper declined. Although originally the cigar industry was entirely dependent upon sun-grown wrapper, by 1929 probably not more than 2 per cent of the cigars manufactured in the United States were wrapped with sun-grown leaf. Connecticut Valley Havana seed and broadleaf and other species, formerly supplying appreciable quantities of wrapper, are now almost exclusively used for binder and filler. Their use for wrapper is now practically confined to a few local brands of cigars. Cigars nationally advertised and distributed are wrapped either with Connecticut or Florida shade-grown leaf, or with imported leaf.

Recently the production of shade-grown tobacco in the Connecticut Valley and in the Florida-Georgia area has shown considerable fluctuation in annual acreage and production. In 1922, when the duty of $2.10 per pound became effective, the Connecticut Valley had under shade 8,000 acres, producing nearly 6,500,000 pounds, valued at

nearly $5,800,000. The area declined to 4,580 acres in 1925, but increased in subsequent years, reaching 8,700 acres in 1929. In 1930, it dropped to 7,400 acres. Table 4 gives the acreage, yield per acre, production, average farm price per pound, and farm value of Connecticut Valley shade-grown wrapper for the period 1922–1930.

TABLE 4.—*Production of cigar-wrapper tobacco under shade in the Connecticut Valley, 1922–1930* [1]

Year	Acreage	Average yield, per acre	Production	Average price, per pound	Total farm value
	Acres	*Pounds*	*Pounds*	*Cents*	
1922	8,000	800	6,400,000	90	$5,760,000
1923	8,400	1,030	8,652,000	100	8,652,000
1924	6,900	1,067	7,360,000	85	6,256,000
1925	4,580	1,052	4,818,000	100	4,818,000
1926	5,210	1,004	5,231,000	98	5,111,000
1927	7,100	900	6,390,000	105	6,709,000
1928	8,000	867	6,936,000	100	6,932,000
1929	8,700	1,174	10,218,000	95	9,705,000
1930	7,400	1,039	7,688,000	(2)	(2)

[1] Bureau of Agricultural Economics, U. S. Department of Agriculture.
[2] Not yet available.

Table 5 gives the acreage, average yield per acre, production, average farm price, and total farm value of shade-grown tobacco in the Florida-Georgia district for the period 1922 to 1930.

TABLE 5.—*Production of cigar-wrapper tobacco under shade in Georgia and Florida, 1922–1930* [1]

Year	Acreage	Average yield, per acre	Production	Average price, per pound	Total farm value
	Acres	*Pounds*	*Pounds*	*Cents*	
1922	4,050	1,095	4,436,000	50	$2,218,000
1923	4,200	1,157	4,860,000	58	2,819,000
1924	2,650	1,075	2,850,000	59	1,682,000
1925	1,900	1,060	2,014,000	65	1,309,000
1926	2,300	1,112	2,557,000	65	1,663,000
1927	2,800	1,206	3,378,000	65	2,196,000
1928	3,800	1,113	4,230,000	55	2,321,000
1929	3,900	1,186	4,626,000	55	2,544,000
1930	3,400	1,130	3,842,000	(2)	(2)

[1] Bureau of Agricultural Economics, U. S. Department of Agriculture.
[2] Not yet available.

Source of imports.—Table 6 shows that nearly all of our imports of cigar wrapper tobacco are shipped directly from the Netherlands. In 1928 general imports totaled 6,631,000 pounds, valued at $13,630,000, of which 6,498,000 pounds, with a value of $13,197,000—98 and 97 per cent, respectively—came from the Netherlands. These imports are principally Sumatra wrapper and in smaller quantity Java wrapper taken to the Netherlands for grading and sale and reshipped to the United States. Of other sources, Cuba is the most important. In addition to furnishing the great bulk of our imports of cigar filler, Cuba supplies the domestic clear Havana cigar manufacturers with wrapper leaf. Imports from Germany, Canada, Mexico, Argentina, and other countries are scattering and unimportant.

TABLE 6.—*General imports of leaf tobacco suitable for cigar wrappers, calendar years 1923–1929* [1]

Imported from—	1923		1924		1925	
	Quantity	Value	Quantity	Value	Quantity	Value
	Pounds		*Pounds*		*Pounds*	
The Netherlands	7,484,730	$17,985,930	5,821,412	$14,941,000	6,261,323	$14,745,058
Canada	12,869	18,962	26,330	51,532	8,795	17,825
Cuba	58,935	71,258	43,584	103,080	149,288	296,377
Argentina	102,632	15,549				
Java and Madeira	20,433	22,235	1,155	924	751	687
Other Dutch East Indies	457	375			3,620	6,628
All other countries	28,201	19,666	1,710	3,196	10,984	10,605
Total	7,708,257	18,133,975	5,894,191	15,099,732	6,434,763	15,077,180

Imported from—	1926		1927		1928		1929	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	Pounds		*Pounds*		*Pounds*		*Pounds*	
The Netherlands	6,322,749	$14,406,436	5,663,895	$12,100,482	6,498,037	$13,196,902	8,460,698	$15,387,770
Canada	8,989	16,077	14,086	24,582	4,378	6,640	7,273	20,903
Cuba	114,056	303,962	100,654	308,329	117,897	384,430	92,816	336,498
Argentina	102,336	17,374						
Java and Madeira					10,392	41,753	2,524	4,410
Other Dutch East Indies	2,020	2,103	5,078	4,229	10	10	10	10
All other countries	1,050	1,395	718	805	492	395	124	474
Total	6,551,200	14,747,347	5,784,431	12,438,427	6,631,206	13,630,130	8,563,445	15,750,065

Source: Foreign Commerce and Navigation, U. S. Department of Commerce.

Imports from Sumatra and Java.—Tobacco was first grown in Deli on the east coast of Sumatra in 1864 by a Javanese planter. From Java it was shipped to the Netherlands, where its extraordinary qualities and its adaptability for cigar wrapper soon attracted capital for its production. The Deli Maatschappij, founded in 1870, with a capitalization of $120,000, was the first tobacco company organized. By 1900 there were 36 companies operating 97 plantations, together with 38 private planters, producing all together some 200,000 bales annually. Table 7 shows the development of the industry from its inception in 1867 to 1928. From 1864 to 1904 the figures are given at 10-year intervals, and from 1910 on annually.

TABLE 7.—*Summary of production of Sumatra tobacco and value in the Netherlands, 1864–1928* [1]

Crop year	Bales [2]	Total value [3]	Crop year	Bales [2]	Total value [3]	Crop year	Bales [2]	Total value [3]
1864	50	$1,608	1913	251,689	$20,059,800	1921	163,681	$16,656,750
1874	12,895	1,145,700	1914	246,543	14,391,600	1922	194,708	25,987,500
1884	125,496	11,073,100	1915	232,911	26,009,400	1923	207,858	31,671,000
1894	193,334	14,070,000	1916	237,898	26,853,600	1924	207,922	33,701,220
1904	233,957	14,391,600	1917	238,299	21,386,400	1925	213,956	30,842,880
1910	234,133	19,215,600	1918	275,392	24,522,000	1926	240,775	29,112,600
1911	280,704	25,004,400	1919	144,469	26,739,430	1927	223,987	32,285,732
1912	282,920	24,120,000	1920	145,507	22,200,900	1928	239,638	28,880,688

[1] Source: Statistisch Overzicht van Sumatra en Java Tabak, p. 27, Dentz and Van der Breggen, Amsterdam.

[2] Bales average 176 pounds each.

[3] Converted to United States currency at par of exchange for years 1864 to 1918; remaining years at average yearly exchange rate as published in Federal Reserve Bulletin.

TABLE 8.—*General imports into the United States of tobacco suitable for cigar wrappers from the Netherlands and the Dutch East Indies, 1880–1929*

Year	Netherlands		Dutch East Indies	
	Quantity	Value	Quantity	Value
FISCAL YEAR	*Pounds*		*Pounds*	
1880 [1]	38	$10		
1881 [1]	200,602	140,665		
1882 [1]	782,763	487,127		
1883 [1]	3,818,931	2,942,148		
1884 [2]	603,536	480,702		
1885 [2]	2,217,917	1,881,494		
1886 [2]	4,000,519	3,394,156	4,278	$3,518
1887 [1]	4,213,336	3,651,349		
1888 [1]	5,861,472	5,634,765	73,674	72,941
1889 [1]	5,024,455	4,333,463		
1890 [1]	9,734,999	9,037,388		
1891 [3]	4,908,545	4,682,493		
1892 [3]	2,661,932	1,890,721		
1893 [3]	5,372,392	5,075,530		
1894	3,869,920	4,543,560		
1895	5,104,495	6,687,142		
1896	4,302,662	4,705,359	15,741	20,299
1897	5,270,924	4,968,136		
1898	3,688,846	3,633,258		
1899	3,796,949	3,780,674		
1900	5,048,194	4,558,143	15,388	18,476
1901	6,251,594	5,601,984		
1902	5,517,841	4,832,540		
1903	5,943,159	4,352,970		
1904	6,964,130	5,251,547		
1905	6,764,861	5,023,434		
1906	6,516,933	6,231,638		
1907	7,078,655	8,266,009		
1908	5,817,733	6,150,791		
1909	5,442,661	5,046,520	369	233
1910	6,383,926	6,211,985	187	148
1911	5,721,447	6,165,339		
1912	6,290,499	7,830,702	22	65
1913	6,193,042	8,038,779	20	19
1914	5,846,504	7,453,746		
1915	7,061,943	9,024,853		
1916	4,963,761	7,079,788	467	654
1917	2,426,322	2,949,668	1,191,560	1,923,238
1918 (July 1, 1917–June 30, 1918)	353,172	575,289	3,890,236	4,400,543
1918 (July 1–Dec. 31)	486	658	6,347,489	9,448,014
CALENDAR YEAR				
1918	1,315	2,023	6,984,516	9,916,128
1919	109,723	179,459	6,504,615	9,087,114
1920	7,720,253	14,582,116	2,102,664	3,033,950
1921	4,409,889	8,894,825	601,492	1,128,668
1922	6,336,040	12,744,256	117,557	433,646
1923	7,484,730	17,985,930	20,890	22,610
1924	5,821,412	14,941,000	1,155	924
1925	6,261,325	14,745,058	4,371	7,315
1926	6,322,749	14,406,436	2,020	2,103
1927	5,663,895	12,100,482	5,078	4,229
1928	6,498,037	13,196,902	10,402	41,763
1929	8,460,698	15,387,770	2,534	4,420

[1] Leaf.
[2] Leaf "suitable for wrappers" and "all other."
[3] Leaf "suitable for cigar wrappers" and "other."

Source: Foreign Commerce and Navigation.

From the beginning of the industry in Sumatra tobacco was shipped to the Netherlands for marketing. In normal times practically all of the East Indian tobacco brought to the United States comes through that country. During the World War the trade was diverted by blockades so that for a number of years wrapper leaf from Sumatra was imported directly. Table 8 indicates that the trade with the United States in this tobacco began shortly after the first tobacco

was grown in Sumatra. Imports increased rapidly until about 1890, and thereafter the trend was gradually upward until about 1907. If account be taken of both direct and indirect importations, the volume has since been maintained at about 6,000,000 pounds. The relatively small imports of Java leaf are combined with the imports of Sumatra leaf in this table.

Official statistics of the Netherlands show separately (1) "exports," comprising exports of Dutch production or manufacture, or foreign warehouse goods destined originally for export, of which Dutch shippers have the free disposition, and (2) "entrepôt trade," embracing the re-export of goods out of bond. The movement of tobacco to the United States falls largely into the latter class. Relatively little of the Sumatra and Java tobacco shipped from the Netherlands comes to the United States. In 1928, of the total exports of Sumatra leaf from the Netherlands, amounting to 34,861,000 pounds, only 5,432,000 pounds, or 15.6 per cent, came to the United States. Of the total exports of Java leaf, amounting to 98,947,000 pounds, only 1,850,000 pounds, or 1.9 per cent, came here. Measured by quantity, shipments of Sumatra tobacco in the order of their importance go to Germany, the United States, Belgium, Czechoslovakia, France, Denmark, Sweden, Austria, and Hungary. Exports of Java tobacco are destined chiefly for Germany, Belgium, Spain, Austria, Poland, France, and the United States. Table 9 shows the total shipments, combining exports and entrepôt trade, of Sumatra and Java tobacco, for the years 1925 to 1929 and by principal destinations for the year 1929.

TABLE 9.—*Shipments of Sumatra and Java tobacco from the Netherlands, including exports and entrepôt trade, totals for the years 1925–1929, and by principal destinations for 1929*

Sumatra leaf			Java leaf		
Destination and year	Gross weight	Per cent of total	Destination and year	Gross weight	Per cent of total
YEAR	*Pounds*		YEAR	*Pounds*	
1925	34,856,078		1925	92,801,920	
1926	29,592,427		1926	85,040,661	
1927	32,849,636		1927	100,884,361	
1928	34,860,786		1928	98,947,300	
1929	36,371,625		1929	98,386,064	
DESTINATION, 1929			DESTINATION, 1929		
Germany	21,057,887	57.9	Germany	59,063,996	60.0
United States	7,289,957	20.0	Belgium	10,891,293	11.1
Belgium	1,610,982	4.4	France	7,223,182	7.3
Denmark	1,173,674	3.2	Austria	3,572,426	3.6
France	844,999	2.3	Spain	2,819,875	2.9
Czechoslovakia	662,110	1.8	Poland and Danzig	2,237,731	2.3
Austria	634,202	1.8	Czechoslovakia	1,973,516	2.0
Sweden	628,479	1.7	United States	1,927,596	2.0
Switzerland	335,216	.9	Switzerland	1,887,964	1.9
Hungary	313,135	.9	Denmark	1,838,544	1.8
Dutch East Indies	313,031	.9	Portugal	1,037,707	1.1
Australia	191,068	.5	Italy (Fiume)	962,429	1.0
Yugoslavia	175,674	.5	Algiers-Tunis	578,150	.6
Canada	132,942	.4	Great Britain	523,476	.5
Great Britain	120,237	.4	Luxemburg	395,085	.4
Spain	118,832	.3	Hungary	389,833	.4
Poland and Danzig	118,314	.3	Other countries	1,063,261	1.1
Brazil	96,458	.3			
Other countries	554,428	1.5			

Source: Nederland Jaarstatistiek, Statistique Annuelle, 1929.

Imports from Cuba.—The first imports of wrapper tobacco from Cuba were contemporaneous with the earliest manufacture of clear Havana cigars in the United States. Cigars of this type were first made at Key West about the year 1869 by Cubans escaping to the United States after an unsuccessful attempt at revolution. With the development of the industry at Key West, and later at Tampa, the demand for Havana wrapper as well as for filler grew. Under the Spanish rule in Cuba, and during war periods the industry in the United States was handicapped by Cuban restrictions, regulations, and embargoes, and at times it was difficult to obtain adequate supplies of raw material. When Cuba was under military rule by the United States and later when the new Cuban Government was established the trade prospered.

In 1900 the growing of wrapper tobacco under cheesecloth shade was introduced into Cuba from the United States, beginning with the planting of one-fourth of an acre. The United States undoubtedly is the leading market for Cuban wrapper tobacco, although no exact figures are available as to quantity coming to this country, as the official Cuban export statistics do not differentiate between wrapper and filler leaf. In 1929 the total exports of all leaf tobacco from Cuba amounted to 46,693,000 pounds, valued at $27,247,000; of this total, shipments to the United States were valued at $19,544,000. Our domestic cigar industry used these shipments for filler and wrapper in clear Havana cigars and for blending with domestic leaf in other high-grade cigars. Other important markets for Cuban leaf are the Netherlands, Argentina, Spain, Sweden, Porto Rico, and Germany.

TABLE 10.—*Exports of stemmed and unstemmed tobacco from Cuba to all countries and to the United States, 1909–1929* [1]

Year	To all countries		To the United States, value	Year	To all countries		To the United States, value
	Quantity	Value			Quantity	Value	
	Pounds				*Pounds*		
1909	48,624,770	$18,477,741	----------	1920	27,670,581	$29,894,218	$25,175,934
1910	31,454,086	14,913,217	$12,566,853	1921	26,540,192	25,401,791	20,791,405
1911	31,135,557	17,915,327	16,050,453	1922	34,515,211	24,585,575	20,146,071
1912	43,805,256	21,223,059	15,877,217	1923	28,808,780	25,334,810	20,838,201
1913	31,211,281	17,431,324	10,851,418	1924	31,660,627	29,949,777	23,545,828
1914	35,646,508	16,584,078	14,214,415	1925	33,628,419	28,748,904	22,989,297
1915	37,606,880	14,872,909	12,027,998	1926	40,234,083	27,057,312	22,067,927
1916	35,816,591	16,298,268	12,536,808	1927	40,130,025	25,557,396	20,377,246
1917	27,959,754	19,169,455	15,403,213	1928	50,708,174	27,484,651	22,402,569
1918	26,973,490	22,369,300	16,322,210	1929	46,693,424	27,247,221	19,544,232
1919	38,824,598	30,195,701	20,551,989				

[1] Reports of American Vice Consul H. C. Vogenitz, Havana, Cuba, Apr. 30, 1929, and May 16, 1930.

Comparative importance of imports and domestic production.—In 1928, a fairly representative year, total imports of wrapper tobacco amounted to 6,631,000 pounds (shrunk and graded weight) as compared with a total domestic production of 11,806,000 pounds (green weight). This comparison does not, however, adequately measure the relative importance of the two sources of wrapper. The imports, especially those from Sumatra and Java, represent the weight on a shrunk basis of carefully sorted and graded leaf, practically 100 per cent suitable for use as wrappers. The high duty limits importation to such leaf. On the other hand, the statistics of domestic production

cover the total output (green weight) of wrapper types, including Connecticut Valley shade-grown, Georgia and Florida shade-grown, and Connecticut Valley prime sun-grown Havana seed. Not all of this tobacco is actually used for wrapper, the percentage so used depending upon seasonal variations affecting the leaf and upon variations in demand.

A better comparison is afforded by showing the number of cigars wrapped with imported leaf as compared with the total production of cigars in the United States. Estimates can be made with a fair degree of accuracy because it may be assumed that practically all of the tobacco on which the wrapper duty is paid is actually used for wrapper and because the average requirements of imported wrapper may be closely approximated. As has been explained, nearly all of the imports of Sumatra and Java wrapper originate immediately in the Netherlands. Official statistics of the Netherlands indicate that about 75 per cent of such imports are of Sumatra leaf and 25 per cent of Java. Estimating the average requirement of Sumatra leaf at 1.8 pounds per thousand cigars, and of other leaf, including that from Java and Cuba, at 3 pounds per thousand, for the 5-year period 1924–1928 imported Sumatra tobacco will wrap some 2,630,000,000 cigars annually, or about 41 per cent of the total domestic production, and other foreign wrapper will account for about 9 per cent. In other words, these estimates indicate that about 50 per cent of the domestic production of cigars is wrapped with imported leaf.

CIGAR INDUSTRY IN ITS RELATION TO WRAPPER TOBACCO

Classes of cigars and wrapper used on each.—For the purpose of the internal-revenue tax, all products made entirely of tobacco and rolled into form for smoking are classed as cigars. The trade, however, recognizes the following classification: (1) Cigars, including everything better than package goods, stogies, or cheroots; (2) little cigars and all tobacco cigarettes, usually sold in small packages for the pocket, and manufactured wholly or partially by machinery, either of domestic or Havana tobacco or of a mixture; and (3) stogies and cheroots, cigar-shaped rolls of cheap domestic tobaccos usually machinemade with no care as to appearance. References to cigar-wrapper tobacco apply only to leaf tobacco used in covering the first-named class of products.

Cigars consumed in the United States are further classified by the trade as (1) imported from (*a*) Cuba, (*b*) Manila, (*c*) Porto Rico; (2) clear Havana (including bonded clear Havana); (3) domestic "nickel goods"; and (4) domestic cigars better than "nickel goods." Only the last three classes are directly involved in any tariff problem. Manufacturers of clear Havana cigars have no option in the selection of their wrapper. In order to be able properly to call their cigars "clear Havana," they must use wrapper as well as filler imported from Cuba. In nickel cigars, many varieties of tobacco are used for the wrapper as well as for the binder and filler. Included in this class is the important type of cigar wrapped with Florida-Georgia shade-grown leaf, having domestic binder and shredded or short filler, which may consist of a number of domestic tobaccos blended with Porto Rican or Cuban scrap or Manila leaf. In some localities, as in York County, Pa., this cigar is still largely a handmade product; in other places, as in northern Florida and in Indiana and

Minnesota, it is machinemade. In this class, also, is the long-filler cigar, mostly machinemade, with wrapper of the cheaper Sumatra leaf with domestic filler and binder tobacco, perhaps mixed with Porto Rican leaf or Cuban scrap. Smaller brands of 5-cent cigars are covered with selected sun-grown Connecticut broadleaf, with Havana seed or darker colors, or with off-grades of Connecticut shade-grown wrapper.

"Domestic cigars better than nickel goods" also vary in type. Important among these are cigars containing Havana filler, a domestic binder, and wrapped with a finer grade of Connecticut shade-grown leaf. Included in this class also are cigars of domestic binder and filler wrapped with finer grades of Sumatra or Java leaf.

In considering tariff aspects of the trade in wrapper tobacco, the question arises as to what extent one type of wrapper may be substituted for another in these several classes of cigars. Manufacturers maintain that when they have established, by means of wide advertising, a particular brand of cigar composed of certain blends of filler and binder tobaccos covered with a certain type of wrapper they endeavor to retain that combination with as little variation as possible in order to avoid loss of patronage by smokers to whom a particular cigar appeals. But it may be safely assumed that the average cigar smoker can, within certain limits of price and make-up, be weaned away from one brand and led to adopt another as his favorite. Many, indeed, habitually smoke a considerable variety of types of cigars. Most of the large manufacturers, and some of the smaller, make at the same time several different brands of cigars with entirely different combinations of filler, binder, and wrapper leaf. Although an individual manufacturer may endeavor to maintain a particular brand as far as possible under the varying conditions of supply of leaf tobacco, he may push one brand rather than another in accordance with changes in the demands of the cigar-smoking public. For example, Tampa manufacturers are selling in increasing quantities cigars made of Havana filler and domestic binder and covered with Connecticut shade wrapper. Other manufacturers, originally clear Havana producers exclusively, have developed under new brand names, or perhaps even under a different manufacturing name, this new type of cigar while continuing their production of clear Havana.

Factors affecting development of cigar industry.—During the last two decades, the cigar business has lost its relative importance in the tobacco industry. In 1913 the domestic production of cigars amounted to 7,500,000,000 as compared with 15,500,000,000 cigarettes. The year 1920 was an extraordinary one for the cigar industry, production amounting to 8,000,000, but in the following years there was a drop to less than 7,000,000,000, reaching the low point of 6,463,000,000 in 1925. In 1926, 1927, and 1928 cigar production remained at approximately 6,500,000,000; in 1928 the production of cigarettes passed the 100,000,000,000 mark. As recently as 1920 more tobacco was used in the production of cigars than in cigarettes, but by 1928 about twice as much was used in cigarettes.

The slight upturn in the cigar industry in the last few years, especially in the production of the 5-cent cigar, has been due principally to two factors, the economies effected by the introduction of labor-saving machines, especially in the manufacture of cheaper cigars, and the reduction of the internal-revenue tax.

The adoption of machines has been a gradual process, those making the entire cigar first coming on to the market about 12 years ago. Machine bunching and molding were the first developments and finally came the modern machine which, without handling, makes between 20,000 and 30,000 cigars a week. The large factories are now equipped also with cellophaning, foiling, and banding machines, adjustable for any shape or size of cigar, covering and banding from 15,000 to 20,000 cigars a day. These machines not only speed up the work and reduce costs but their use shortens the training time of the cigar maker from a period of six months to a year to a period of two to four weeks. Other machines make boxes and pack the cigars into them. When cardboard is used for packing, the machine prints, cuts, creases, and folds it automatically and finishes the packages by glueing or clamping. Ornamental cans, now widely used, are also made, printed, stamped, and packed by automatic machines. Tobacco stripping and booking machines are used in removing the midrib of all kinds of leaf tobacco; stem crushing and booking machines are used in working up Havana and Porto Rican filler. The general adoption of machinery is an important factor in the recent recovery of the 5-cent cigar industry.

A considerable reduction in the internal-revenue taxes on cigars became effective in 1926. Before 1917 manufacturers were required to pay a tax of $3 per thousand on cigars regardless of the price class. During the World War the tax was radically increased. In 1926, however, upon representations of the manufacturers that the industry could not longer bear up under its burden of taxation, Congress reduced the taxes. In the revenue act of 1918 cigars were classified for revenue purposes in accordance with their retail price as follows: Class A, to sell at not over 5 cents each; class B, at over 5 cents and not over 8; class C, at over 8 cents and not over 15; class D, at over 15 cents and not over 20; class E, at over 20 cents.

Table 11 shows the changes in internal-revenue taxes on cigars since 1917.

TABLE 11.—*Changes in internal-revenue taxes on cigars, per thousand*

Class	Previous to 1917	War tax, 1918	Reduction, 1926	Class	Previous to 1917	War tax, 1918	Reduction, 1926
A	$3.00	$4.00	$2.00	D	$5.00	$12.00	$10.50
B	3.00	6.00	3.00	E	3.00	15.00	13.50
C	3.00	9.00	5.00				

The foregoing table shows that the amount of the internal-revenue tax varies with the retail class price of the cigar. So also the relative importance of the duty on wrapper tobacco varies with the type of the cigar, but in a different manner and for different reasons. The 5-cent cigar, wrapped with imported Sumatra, may be considered first. For this cigar, the average quantity of wrapper used varies from about 1.75 to 2 pounds per thousand. Thus the duty in the act of 1930 of $2.27½ per pound is equivalent to between $3.98 and $4.45 per thousand cigars. The importance of this duty to the manufacturer becomes evident when it is noted that the total average prices paid for the wrapper of this type of cigar varies from about $5.50 to $6.25 per thousand cigars. For the higher priced

cigars wrapped with Sumatra leaf the relative importance of the wrapper duty is probably somewhat less. For cigars wrapped with imported Java leaf (requiring from 2½ to 3 pounds per thousand cigars) the duty is equivalent to from $5.69 to $6.82 per thousand.

The manufacturer of clear Havana cigars stands in a unique position with regard to the duty on wrapper tobacco. His wrapper leaf is imported from Cuba and is consequently subject to a duty 20 per cent less than the general rate, the duty under the act of 1930 on unstemmed wrapper from Cuba being $1.82 per pound. As approximately 4 pounds of Havana leaf are required to wrap a thousand cigars, the duty is equivalent to $7.28 per thousand cigars. But not all of the clear Havana cigars manufactured in this country are wrapped with leaf classified as a wrapper for duty purposes. Representatives of the clear Havana manufacturers estimated for the Finance Committee of the Senate that about one-third of the total production was so wrapped, the remainder being wrapped with leaf classified for duty purposes as filler and therefore dutiable at 28 cents per pound, or $1.12 per thousand cigars.

Manufacturers of cigars using imported leaf for wrapper, as well as those using domestic leaf, take distinct positions with regard to the tariff according to the particular kind of wrapper they use. Thus during the tariff readjustment of 1930 a number of manufacturers using Florida-Georgia shade-grown leaf appeared at the hearings before the committees of Congress and supported the domestic wrapper growers in their requests for higher duties on wrapper leaf. They evidently believed that the advantage they would derive from the resulting increase in cost to their competitors of Sumatra wrapper would more than offset any increase in price they might have to pay for their Florida wrapper. On the other hand, no manufacturer primarily interested in the production of cigars wrapped with Connecticut shade-grown leaf requested any increase in duty.

RELATION BETWEEN THE PRODUCTION OF FILLER AND BINDER LEAF AND THE DUTY ON WRAPPER TOBACCO

Farmers growing cigar filler and binder leaf and packers and dealers of those type are interested in the duty on wrapper tobacco because most of the wrapper tobacco imported is used in cigars having domestic filler and binder. Appearing before the committees of Congress during the tariff readjustment of 1929 growers of filler and binder tobacco expressed the fear that if the duty on wrapper tobacco were materially increased, the total production of cigars might be cut down with a resultant decline in the demand for their product.

Relative size of the filler and binder industries as compared with the wrapper industry.—The importance of the various types of cigar leaf may be roughly illustrated by the quantity of each used in a typical 5-cent cigar. Per thousand of such cigars, the average weight of the wrapper was 1¾ pounds; of the binder, 4½ pounds; and of the filler, 15½ pounds. Because of the lower price of the filler and binder tobaccos, their combined cost is only about one and three-fourths times the cost of the wrapper in the cigar.

In 1929, the total area planted to filler and binder tobaccos in the United States was 130,400 acres, or over ten times the acreage in wrapper tobacco. (See Table 2, p. 6.) The total quantity of filler

and binder produced was 153,012,000 pounds, valued at $25,675,000, as compared with 15,159,000 pounds of wrapper, with a value of $12,252,000. In comparing acreage and production it must be remembered that much of the wrapper tobacco is grown under shade by large corporations, whereas most of the filler and binder types are grown by individual farmers. The centers of production of filler tobacco are the eastern counties of Pennsylvania and the Miami Valley of Ohio; the centers of binder are the southern and northern tobacco districts of Wisconsin, the Connecticut Valley, New York, and Pennsylvania.

PRODUCTION AND MARKETING

Production and marketing of domestic wrapper.

Up to the time that wrapper tobacco was grown under shade, relatively little was accomplished by way of developing special types for cigar wrapper. To obtain wrappers from the sun-grown tobaccos, such as the broadleaf and the Havana seed of the Connecticut Valley, dependence was put chiefly on sorting. The most suitable

FIGURE 2.—Fields of wrapper tobacco under cloth shade in the Connecticut Valley as seen from Mount Sugarloaf, South Deerfield, Mass. The "meadows" are dotted with tobacco barns; the soil is very fertile and well adapted to the production of wrapper tobacco. (From Mass. Agr. Exp. Sta., Bul. 193)

leaves were sorted out for wrapper from the general run of the crop from which was derived also the filler and binder. The usual method of harvesting sun-grown tobacco is to cut the whole stalk when the middle leaves are ripe. The stalks are then strung on laths and hung in a shed to cure. As the lower leaves ripen before the upper, this method, although economical of labor, necessitates the harvesting of some leaves before they are fully ripe and of others when they are overripe. Harvesting at the proper degree of ripeness generally assures the texture, body, color, and elasticity requisite for wrapper leaf. Judged by our present standards, only a small proportion of the "stalk-grown" leaf could have been suitable for cigar wrapper under the sun-grown method of harvesting.

With the beginnings of the shade industry came more elaborate methods of growing tobacco, assuring a larger yield of the wrapper

grades. Except for minor differences, the methods employed in Connecticut of growing under shade are typical of other regions. Up to the time of transplanting, much the same methods are employed in making the seed beds and in growing the plants as in the culture of

FIGURE 3.—Tobacco-transplanting crew in Florida wrapper-tobacco field. The plants are set and watered immediately afterwards to secure a uniform start of all plants. (From Fla. Agr. Exp. Sta., Bul. 198)

FIGURE 4.—"Tying up" Florida wrapper tobacco. A woman loops the twine around the base of the stalk and a man ties the other end of the twine to the slats or wire overhead. (From Fla. Agr. Exp. Sta., Bul. 198)

sun-grown leaf. The seed are sown in a cold frame or in a hotbed after the soil has been thoroughly prepared by generous applications of fertilizer and by sufficient working to bring it to a fine tilth. Mixing the seed with finely sifted wood ashes or other material insures even

sowing. When the beds have been sown they are covered with glass or cheesecloth and are carefully attended that the proper degree of moisture and of temperature may be maintained.

In transplanting tobacco to be grown under shade, the field is set with posts upon which heavy wire is stretched to make a framework for the cloth covering—a specially woven cotton fabric. Roof and side walls are formed of the cloth, with the necessary openings left for doors to be closed at night. The field is thus protected from insects and consequently there is little hand picking of tobacco worms. In the Florida-Georgia region three different types of shade are employed—cloth shade, slat shade, and combination cloth and slat. Slat shade, although providing less protection, lasts longer than cloth, which is usually good for only one season. A combination of cloth and slats

FIGURE 5.—Priming Florida cigar-wrapper tobacco. The tobacco leaves are brought to the ends of the rows in "pads" and are placed in boxes or on litters, and are covered with burlap or canvas to protect them from the sunshine. (From Fla. Agr. Exp. Sta., Bul. 198)

furnishes a heavier shade and is used to obtain a larger proportion of thin leaves.

In Connecticut, transplanting is done by machine except for rows in line with the posts, where the plants are set by hand. In the Florida-Georgia area, where labor is more plentiful, transplanting is done by hand. After the plants are set, they are carefully tended and replanting is done where necessary. Thorough cultivation is practiced until the plants are well grown.

Shade tobacco is generally harvested by the "priming" method, i. e., instead of the whole stalk being cut, the leaves are picked from the standing stalk as they reach the desired stage of ripeness. Several leaves are gathered from the stalk at one picking, but a number of successive pickings are necessary to complete the harvest. The leaves are carried to the shed, strung on strings attached to laths, and hung up on racks for curing.

The curing process is carefully controlled. In a wet season, when the tobacco is apt to cure too slowly and to become moldy, charcoal fires are built in the sheds. In a very dry season, when there is danger of pole burn and of the tobacco drying out rather than curing properly, artificial moisture is supplied in the sheds. Skill and experience are important in the management of the curing. No fixed rules can be followed because of variations in weather conditions and in the requirements of primings.

When the midribs of the tobacco are thoroughly cured the leaves are ready to be taken to the packing house. There they are brought to the desired degree of "case," that is, to a soft and pliable state. The sticks are then taken down, the strings cut loose from the laths, and the leaves drawn together and tied into bundles or "hands." When

FIGURE 6.—Interior view of a cigar-wrapper tobacco curing barn, showing arrangement of tier poles and the manner of placing sticks of tobacco on them. (From Fla. Agr. Exp. Sta., Bul. 198)

the hands are packed into boxes and delivered to the packing house, the work of the grower is completed.

In Connecticut, most of the shade-grown tobacco is produced either directly or under contract by large corporations. These corporations pack as well as grow the tobacco, and the farm price represents merely a bookkeeping valuation given at the time the tobacco is delivered to the packing house. In the Florida-Georgia region, an appreciable part of the crop is raised by individual growers, either independently or under contract with packers. Here the farm price may be more representative of actual transactions. The farm prices given in Table 2 for Connecticut and Florida-Georgia shade tobacco are for the leaf in bulk as it goes from the farm and before it is fermented or graded in the warehouse.

Upon arrival at the warehouse the tobacco is removed from the boxes and made into regular piles or "bulks," weighing from 4,000 to 6,000 pounds, and approximately 6 feet wide, 12 feet long, and 4 to 6 feet high. Fermentation is carefully controlled by maintaining the proper temperature and humidity in the warehouse. At a certain temperature the bulk must be taken down and rebuilt. It is usually turned from three to five times before the fermentation process is completed. The tobacco is then stored in cases until the packer is ready to sort and select it.

When the leaves are finally removed from the bulk they are too dry to be opened up for examination of color and texture. The packer therefore moistens them slightly with a fine spray of water and repacks them in boxes for 12 to 24 hours in order to put them "in case." The strings of the "hands" are then cut, the leaves placed on tables where skilled workers sort them for soundness, weight, size, and color. The number of grades varies with the uniformity of the leaves and with the demands of the trade. After the leaves are graded, those of the same length are retied into hands of about 30 leaves each and rebulked for further fermentation and drying out. When sufficiently dry, the tobacco is pressed into bales of about 32 by 12 by 12 inches. The average weight of a bale is about 180 pounds. Each length of every grade is baled separately. The bale is covered with heavy waxed paper over which an East India cane mat is sewed and the bale tied with rope. Before shipment the bales of the better grades are covered with burlap and packed in wooden boxes.

TABLE 12.—*Representative packing of 1,000 bales of Connecticut shade-grown tobacco, 1928*

[Bales]

Grade	9-inch	10-inch	11-inch	12-inch	13-inch	14-inch	15-inch	16-inch	17-inch	Not sized	Total packed
L	-------	-------	4.3	4.8	7.6	8.9	6.5	3.5	0.4	-------	35.9
LL	-------	-------	11.5	17.3	22.1	21.7	13.9	5.0	+.6	-------	92.1
LV	-------	-------	2.8	5.9	+8.1	11.1	10.4	5.0	1.5	-------	44.8
V	-------	-------	8.2	13.2	15.8	16.3	10.8	5.2	1.8	-------	71.3
LC	-------	-------	15.0	23.6	29.3	28.8	17.1	5.6	1.3	-------	120.7
LC-2's	-------	-------	2.8	3.0	2.8	1.9	.9	.2	-------	-------	11.7
SL [1]	-------	-------	.6	1.7	3.5	4.8	4.6	2.4	.6	-------	18.2
ML [1]	-------	-------	-------	.9	2.4	5.4	5.6	2.8	.7	-------	17.8
XL [1]	-------	-------	13.9	19.5	21.9	19.9	13.6	6.1	1.7	-------	96.6
LB [2]	-------	-------	.9	3.5	5.8	6.2	6.1	2.8	2.2	-------	27.5
M-1's [2]	-------	-------	2.4	6.7	15.0	19.5	12.3	7.8	2.6	-------	66.3
M-2's [2]	-------	-------	3.9	6.5	10.2	10.6	6.1	3.9	1.5	-------	42.7
XX	-------	-------	-------	-------	-------	-------	-------	-------	-------	[3] 24.3	24.3
9-inch	[4] 42.7	-------	-------	-------	-------	-------	-------	-------	-------	-------	42.7
10-inch	-------	[4] 41.2	-------	-------	-------	-------	-------	-------	-------	-------	41.2
Loose leaves	-------	-------	-------	-------	-------	-------	-------	-------	-------	[3] 15.4	15.4
Third priming	11.7	27.7	50.7	62.0	50.7	19.8	6.7	1.5	-------	-------	230.8
Total	54.4	68.9	117.0	168.6	195.2	174.9	114.6	51.8	14.9	39.7	1,000.0

[1] Tobacco of 11 and 12 inches used mostly on 5-cent cigars.
[2] All tobacco of these grades is used in making 5-cent cigars.
[3] Filler tobacco.
[4] Cigarettes and binder.

The grading of shade tobacco varies in the different areas and even among packers. The 1929 contract of a representative packer in the Florida area called for the following grades. The leaves were to be of two lengths—(1) 14 inches and longer, and (2) less than 14 inches.

The grading for color, soundness, texture, etc., was to be as follows: Prime lights, brown lights, No. 2 lights, plain medium, stain No. 1, light broken, dark wrappers, medium broken, stain No. 2, fillers, and tops.

Table 12 shows a representative packing of 1,000 bales of Connecticut shade tobacco, indicating the portion of the total pack going into the various grades and sizes.

Prices.

The purchase of shade-grown tobacco is usually by private sale. The buyer, who may be an agent of the cigar manufacturer or a dealer, goes to the packer's warehouse and bids for the graded tobacco on the basis of the samples shown. In recent years the large manufacturers have made an increasingly greater part of their purchases direct from the packers. Because of the method of sale, there are no significant or regular published quotations. Some idea, however, of the range and level of prices of graded tobacco may be obtained from the records of representative dealers and cigar manufacturers.

A representative manufacturer of 5-cent cigars in 1928 paid the following prices for his supply of Florida shade wrapper:

Grade	Price per pound
Prime lights	$2. 40–$2. 60
A lights and brown lights	2. 00– 2. 20
B lights	1. 50– 1. 75
No. 2 lights	1. 50– 1. 85
XL (broken leaves)	. 85– 1. 25

In the same year, a manufacturer using Connecticut shade wrapper paid the following prices for his supply:

Grade	Price per pound	
	13-inch	12-inch
L	$5. 25	$3. 75
LL	4. 50	3. 25
LV	3. 00–4. 00	2. 50
LC	3. 00–3. 25	3. 00
XL	1. 50	----

Production and marketing of imported wrapper tobacco.

Production of Sumatra tobacco.—As stated in the discussion of imports, Sumatra is the outstanding source of our imports of wrapper tobacco. The northern half of the east coast of the island on the coastal plains facing the Straits of Malacca is the tobacco-growing area. Leaf grown in this region, centering at Medan, known as Deli leaf or Sumatra wrapper, is used exclusively for cigar wrapper; it is unsuited for use as cigar filler, for cigarettes, chewing tobacco, or snuff.

The center of the tobacco district is between 3½° and 4° north of the Equator. There the temperature averages about 80° F., with little variation throughout the year. The difference between the longest and the shortest day in the year is not more than 40 minutes. Rain is seldom lacking for any considerable period. More than two weeks of dry weather may mean great loss to the planters, especially when the leaves are maturing. Despite frequent rains, there is seldom a day without sunshine.

Large plantations averaging 7,500 acres are the rule in Sumatra. The Deli Maatschappij and the other Dutch companies associated with it have about 75 plantations under their control. The usual practice is to put one-tenth of the plantation in tobacco each year,

to allow the coolies to cultivate a dry rice crop the following year, and to let the land lie fallow the succeeding seven or eight years.

The clearing of a virgin forest of an 8-year jungle growth is begun in November after the tobacco of the previous harvest has been cured and fermented. The larger trees are cut down and the undergrowth burnt over preparatory to turning over the soil. Preparation of the soil is all hand labor performed by Chinese coolies, who use long-bladed hoes or "changcols" to cut, lift, and turn the sod. Care must be taken not to cut too deeply into the subsoil. The rich surface humus resulting from eight years of lush, tropical growth constitutes a valuable fertilizing element.

Methods of cultivation in Sumatra closely resemble those used in Florida. The most striking difference is that the Sumatra leaf is grown in the open and not under shade. From the time the seed beds are planted late in December, the crop entails the same heavy outlay for labor that is required in this country. The prevalence of insects makes it necessary to protect the young plants. For this purpose a light framework of bamboo covered with cheesecloth is set up over each plant bed. The young plants are sprayed at regular intervals with a solution of arsenate of lead. Despite these precautions, worms attack some of the plants, and native women and children are employed to pick them off.

In February or March transplanting begins. The plants are set by hand in holes that are 3 inches deep and that have previously been watered. Wooden shingles, 8 by 4 inches, are set A-shaped over each plant to protect it from the sun until it regains its strength.

Three separate hand cultivations are given, furrows are dug between the rows and deeper furrows around each field to catch the surplus rain water. When the tobacco is half grown, the axillary buds, or suckers, which appear at that time are removed. Before the final cultivation the lowest sand leaves are picked and allowed to decay around the roots. Tops are cut just prior to the blooming of the first flower bud. Careful seed selection, such as is practiced in the wrapper tobacco areas in the United States, is the rule. The Deli Maatschappij and its associated companies jealously guard their monopoly of Deli tobacco, and a heavy penalty is imposed for exporting seed to other countries. The planters themselves and the Deli Proefstation, the experiment station established by the Dutch Government, are constantly endeavoring to improve the quality and to maintain the uniformity of their product.

Harvesting, which usually begins from 90 to 100 days after transplanting, extends from the middle of March until the end of June. The priming method, much the same as that employed for shade-grown leaf in the United States, is used in harvesting. Four types of leaves are recognized—sand leaves, foot leaves, middle, and top. The leaves are placed in baskets of coarse woven matting, the projecting ends of which are used to cover the tobacco to protect it from the sun. The leaves are carried direct or by means of bullock carts to the curing sheds, where Javanese women are employed to string them in bunches of 50 for hanging on the curing racks. The average shed is 180 by 72 feet. Its steeply sloping roof is covered with leaf thatch, and its roof and sides are furnished with large, thatched ventilators. The curing in the sheds and the later fermenting in the warehouses are carefully controlled in much the same manner as in the United States.

When the tobacco is brought into the warehouses from the curing sheds it goes through a preliminary sorting by Chinese experts, who classify it according to size, color, and soundness. Sand, foot, middle, and top leaves are put into separate bulks for fermentation. To prevent overheating in the fermentation, the bulks are rebuilt as it becomes necessary. Two months are required to complete the process of fermenting an entire crop.

When fermentation is completed, the bunches are opened and Chinese experts finally classify the leaves before baling. Of the some 28 leaves harvested from the average Sumatra tobacco plant, the first four are sand leaves, usually purchased by Dutch, German, and Swedish buyers. Just above these are about 16 finely textured foot leaves, best suited to the requirements of American buyers. The leaves are classified as to length as follows:

Class 1	More than 15 inches.
2	More than 12 inches and less than 15 inches.
3	More than 10 inches and less than 12 inches.
4	More than 7 inches and less than 10 inches.

A first-quality leaf may be 20 inches long. American buyers take the first two lengths and good grades of the third.

Grading according to color is very important in Sumatra wrapper leaf and is done by the most skilled Chinese workers. The marking may differ somewhat among the several companies, but the following marks are representative:

V	Fallow (pale yellow).
LV	Light fallow.
L	Light (brown).
B	Brown.
VV	Brown fallow.
BB	Off-color brown.
K	Off-color light brown.

The Deli Maatschappij has a more detailed color classification of 20 grades.

After the leaves are sorted they are pressed into bales averaging 80 kilograms, or 176 pounds, and covered with Boreo matting. The bales are 50 inches square and 9 to 12 inches high, the height varying with the size of the leaf baled. There are no sales of Deli tobacco in Sumatra except a few small lots of inferior leaf for shipment to Java and China. Practically all of the tobacco is shipped to Amsterdam for sale at the inscriptions there.

Production of Java tobacco.—Cultivation of tobacco in Java for export is mostly confined to some 40 estates owned by Europeans. The center of the industry is Klaten, a small city in Soerakerta. Tobacco is not the exclusive crop of these estates, as on the large plantations of Sumatra; much of the acreage must be devoted to food crops for the support of the dense population. Arable land not regularly cultivated is extremely rare; virgin soil can not be found anywhere. The land is intensively cultivated, in this respect differing markedly from the large estates in Sumatra, where only one-seventh of the area is cultivated.

In Java, the land upon which tobacco is grown is extraordinarily fertile because of its volcanic formation. Advantage is taken of this fertility by thorough and deep cultivation made possible by the abundance of cheap native labor. Each field is divided into two parts; on one half tobacco is grown and on the other a variety of crops.

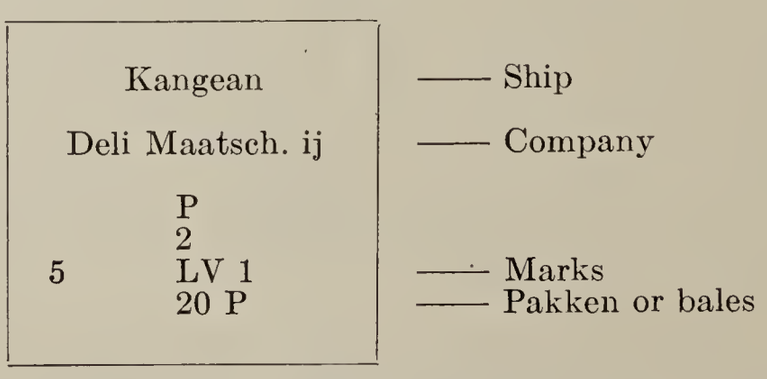
Rice under irrigation is the principal secondary crop. In a 2-year period the land produces three rice crops and one tobacco crop. Because of the great fertility of the soil, the yields are heavy. Good soil will produce 20 pikols per bouw (1,593 pounds per acre) of tobacco and 100 pikols per bouw (7,966 pounds per acre) of rice in the 2-year period. Much of the tobacco is grown under irrigation. Methods of cultivation, harvesting, curing, and fermentation are much like those followed in Sumatra.

Java tobacco is generally heavier and darker than Sumatra tobacco, and only a relatively small percentage of the crop is adapted to the wrapper requirements of American cigar manufacturers. The sorting is done exclusively by women workers—first by a group sorting for quality, then by a group sorting for color. Finally the leaves are measured into lengths and bundled. Tobacco which does not show any field mold, broken leaves, pressure spots, flecked leaves, or thick leaves is sorted into five qualities with the following marks:

1. Quality	2. Quality	3. Quality	4. Quality
A brown.	B brown.	C brown.	Z black.
AA light brown.	BB light brown.	CC light brown.	Z brown.
AV pale brown.	BV pale brown.	CV pale brown.	ZZ light brown.
AAV light pale brown.	BBV light pale brown.	CCV light pale brown.	ZV pale brown.

Marketing of Sumatra and Java tobacco in the Netherlands.—Producing companies will not permit Sumatra tobacco to be sold in Sumatra nor will they allow it to be shipped thence direct to the United States. American buyers must obtain their supplies at the regular sales (inscriptions) at Amsterdam and Rotterdam. The first shipments of Sumatra wrapper begin to arrive in Amsterdam about the middle of October and continue weekly until the end of July. Shipments are made from Sumatra as soon as possible after sorting in order to avoid attack by Lasioderma, or tobacco beetle, which is checked upon the arrival of the tobacco in a temperate climate. The principal producing companies maintain their main offices at Amsterdam or at Rotterdam and sell their product through sworn brokers, some nine in number, who make a specialty of acting as intermediaries between producers and buyers.

In order that the brokers may estimate values and the buyers determine what they desire to bid, each broker is permitted to draw samples from every lot of tobacco offered for sale. One bale out of every ten may be selected for sampling. Each sample bundle of leaves drawn from the bale is tagged with a printed ticket bearing the name of the ship, the grower, the mark or grade, and the number of bales containing that grade, thus:



Before the tobacco is put up for sale, each lot is given a preliminary valuation by the brokers, a process known as taxatie. Each broker taxes each lot separately, after which the average is made up and

published for the benefit of buyers and sellers. After the taxatie is completed the buyers are allowed to examine the samples. As American buyers invariably take the finest qualities and pay the highest prices, the brokers permit them to make their examinations in private sample rooms, used also by large European buyers. The largest American buyers, brokers, and representatives of the large cigar companies maintain their private offices and sampling rooms in the tobacco district in Amsterdam.

Sellers require the whole of each lot of tobacco to be covered by a single bid. As American buyers are interested in the highest grades and European buyers, chiefly Germans and Scandinavians, are interested in the lower grades, technically called the Schwanz, a method has been developed of combining the American bids for the higher grades in a lot with the bids of European buyers for the lower grades in such a manner as to determine the highest combined bid for the whole lot.

On the sales day the brokers submit these combined bids to the representatives of the producing companies and the results of the bidding are publicly announced. The successful bidder often resells part of his purchase to other buyers who are anxious to purchase some of a particular lot. The American purchases of Sumatra tobacco are made by a relatively small number of brokers and by representatives of large American cigar companies. Of the 1928 crop of Sumatra tobacco, totaling 239,110 bales, 34,598 bales, or about 14 per cent, were purchased by some 11 American buyers.

Reports from the Netherlands indicate that in the marketing of the crop of 1929 and of more recent crops, there has been a tendency to depart from the customary method of sale and to sell considerable quantities of the higher grades at high prices "out of hand" to American buyers before the inscriptions are held. Less than 2 per cent of the Java crop is purchased for use in this country.

Production and marketing of Cuba leaf.

Although Cuba is far more important to our domestic cigar industry as a source of high grade filler leaf, it is also the source of the relatively small imports of wrapper tobacco for the domestic clear Havana industry. The island has long been famous for its fragrant cigar tobaccos, grown in the Vuelta Abajo in the Province of Pinar del Rio; the Partidos in the Province of Habana; and the Remedios in Santa Clara—the three principal tobacco-growing districts. Within these districts, there are localities where certain variations in type occur. Thus although the Vuelta district generally produces tobacco of light color, delicate aroma, and agreeable flavor, the Semi-Vuelta area, in the eastern part of the district, produces some very strong tobacco used only for blending. The Partidos district is an important source of wrapper tobacco, some of which is grown on large plantations, under shade, either of cheesecloth or the partial shade of palm fronds. Because of the fertility of the red clayey soil of this region, the plants grow large and the leaves are of fine texture. The Remedios leaf is typically coarse and gummy and is used largely in blends with other less highly flavored tobacco.

Although the soil and the climatic conditions of Cuba are generally favorable to tobacco growing, they are less so than in Sumatra, where land is so plentiful that much of it can lie fallow for years. In Cuba the land has been intensively cultivated for many years,

and its fertility is maintained only by heavy applications of manure and commercial fertilizers. If the cost of barnyard manure is prohibitive, green manuring is practiced.

In general, the practices followed in the cultivation of both sun-grown and shade-grown tobacco in Cuba resemble those followed in the wrapper tobacco districts of the United States. Tobacco is grown in Cuba by two classes of planters, small farmers cultivating only a few acres and large operators having considerable capital and conducting large-scale operations. The latter use up-to-date American implements, such as tractors and manure spreaders. The first plowing is done by a double disk plow or a 1-share steel plow; harrowing, by tractor-drawn disk harrows. Ordinary spike-tooth harrows are still employed on small farms.

November is the height of the transplanting season. Women and children distribute the plants along the rows and the men planters follow. The newer practice is to run water along the furrows before planting. After four or five days water is again run along the furrows and dry dirt is placed around the plant. Cultivation is largely by hand, the laborer using the short-handled hoe, or "guacate." At least three cultivations are given and by the time of the third, the furrows have been converted into high ridges. Topping and suckering are always necessary for the proper development of the leaves. These operations are usually done by women and children.

Sun-grown tobacco is harvested by cutting the stalk with a pruning knife into as many sections as there are pairs of leaves; shade-grown tobacco, by priming, as in the United States. The middle standard leaves are picked first, as experience has demonstrated to the planters that in this way the best wrappers are to be obtained. Thereafter, the lower standards, the upper standards, and the top leaves are taken in order. The sand leaves are seldom utilized. Planters often leave one sucker on each plant to produce a sucker crop to be harvested for domestic cigarette tobacco.

According to the prevailing method of sale, planters sell to dealers while the tobacco is still in the fields or while it is on the poles in the curing barn. Thus the packer has complete control of the curing and sorting processes. Many of the small planters sell to the local storekeepers, "tiendas," who have advanced them money during the growing season. From storekeepers, the leaf is bought by large tobacco dealers or manufacturers who have one or more warehouses in Havana and who employ buyers to ride about the country. When cured and graded in the local warehouse, the leaf is shipped to the large warehouses in Havana. Some of the larger plantations, especially those growing under shade, have their own warehouses where the tobacco is fermented and sorted.

The finest leaves are sorted out into the wrapper grades, which according to the Cuban standards, must be free from spots, stains, and heavy veins, and of suitable size, texture, and burn. Sorted according to size and according to fineness the main groups are as follows:

First—1a/10a S (dry); 1a/10a F (fine); 1a/10a M (medium).
Second—11a/12a S (dry); 11a/12a F (fine); 11a/12a M (medium).
Third—13a S (dry); 12a F (fine); 13a M (medium).

Leaf, which because of some flaw can not be included in the wrapper grades, is classified as resages, "rejects." After sorting, the leaves are tied into hands and pressed into bales.

CONDITIONS OF COMPETITION BETWEEN DOMESTIC SHADE-GROWN AND SUMATRA WRAPPER TOBACCO

The relative strength of the competitive position of the domestic and foreign producers of wrapper tobacco who supply our markets depends upon a number of factors, some natural and some connected with the labor supply and the organization of the industries. As more than 90 per cent of our imports originate in Sumatra, comparison is made between conditions in Sumatra and in the Connecticut Valley and the Florida-Georgia districts of the United States.

Natural factors.—In this triangular comparison climate is a factor to be considered. Against the typically tropical climate of Sumatra is the temperate climate of Connecticut and the semitropical climate of Florida. In the Deli district of Sumatra the temperature varies little throughout the year, seldom rising above 95° F. or falling below 70°. A profuse and an evenly distributed rainfall throughout the growing season, together with a high and fairly constant temperature, produces a uniformly humid atmosphere ideally suited to the growth of the Deli leaf. The Connecticut Valley is subject to considerable variation between seasons, one of the greatest dangers to the tobacco crop being that of hailstorms.

Availability of land and type of soil are also factors of importance. In Sumatra land is so readily available that only about one-seventh of the acreage devoted to the tobacco crop is used each year. The rich surface humus obtained by turning under the accumulation of seven years of lush, tropical growth is a valuable fertilizer. In the Connecticut Valley and in the Florida-Georgia districts a more limited acreage is suited to shade tobacco growing, and the land is high priced and must be heavily fertilized.

Tobacco, being a leaf crop, is especially subject to disease and attack by insects. In Sumatra some 27 insect enemies of the plant have been recorded. Most of the fungous diseases are also found on the island, but only tobacco wilt, caused by the *Bacterium solancearum*, is important. Spraying the young plants with 1 per cent solution of arsenate of lead lessens the danger from insects. At the rate of pay of a few Dutch cents per hundred worms, native women and children are employed to pick off the worms. In the United States tobacco production involves a continuous struggle against insect enemies and disease. In combating these, growers have had the assistance of the researches of the United States Department of Agriculture and of the State experiment stations. Among the more destructive insects are the tobacco flea beetle, the tobacco wireworm, the cutworm, the hornworm, and the tobacco budworm. Completely inclosing the tobacco field with roofs and walls of cloth has been effective in shutting out insects, many of them night flying. Tobacco wilt, the mosaic diseases, the leaf-spot diseases, and the root-rot diseases have contributed also to the difficulties of tobacco growing.

In the Florida-Georgia district a disease, known as black shank, figured prominently in the hearings on tariff readjustment in 1929. Black shank is a fungous disease, usually starting with the roots and basal portion of the stem. A foot or more above the ground the stem often turns black or brown and wilting is followed by yellowing and drying out of the lower leaves progressively upward until the plant finally shrivels up. The disease was unknown in the Florida-Georgia

district previous to 1915 when it appeared on two farms in the southern part of Decatur County, Ga. From that point it spread until by 1919 it had covered practically the entire district. Connecticut Round Tip, a popular type brought from Connecticut, was very susceptible to this disease, and Big Cuba, a local type, only a little less so. Tobacco planted on fields previously infected was always a complete failure. Heavy losses, sometimes total failures, were incurred even on first-year plantings on new lands. Moving the shade to new land each year, a doubtful practice from a financial standpoint, was thus not always successful. As a result of the disease, the cultivation of wrapper tobacco under shade in this area became so risky that the

FIGURE 7.—Wilt of tobacco plants resulting from the invasion of the roots by black shank, *Phytophthera*. This illustration shows a portion of three rows of a 6-acre field before attack by the disease. Centers of infection appeared early in the season some distance to the left of these rows and rapidly enlarged, making a clean sweep across the field in all directions. (From Fla. Exp. Sta., Bul. 179)

acreage in 1925 was cut down to 1,900 acres, as compared with over 4,000 acres in 1922 and 1923.

Beginning in 1922, the Florida Experiment Station, in cooperation with the growers, began to test out various methods of controlling black shank. Steam sterilization of a whole field was tried out, but proved too expensive to be practicable and besides was not wholly successful. Treatment of the land with certain chemicals was also found to be impracticable. The development of strains of resistant types of plants appeared to be the most promising way of dealing with the disease. Solving the problem depended not only upon the development of a disease-resistant strain, but of a strain with the desired qualities of the best commercial type of wrapper tobacco—good yield, color, texture, taste, burn, and aroma. Experiments were conducted over a number of years. There were finally produced several strains that were highly resistant to the disease and that were also desirable from the manufacturer's standpoint. In 1929 a considerable commercial acreage was planted in these types with such

success at harvest time that the following year increased acreage was planned. It may be too early to predict the outcome of the struggle to combat black shank. This is only one of the diseases against which a perpetual battle is being waged in one area or another.

FIGURE 8.—Comparison of strains of Florida wrapper tobacco nonresistant and resistant to black shank. Row on the left is the original commercial type of Big Cuba. Row on the right is a vigorous and highly resistant strain. (Fla. Agr. Exp. Sta., Bul. 179)

Tables 4 and 5 compare the yields in the Florida-Georgia and Connecticut Valley districts for a number of years. Table 13 gives the average yields of shade-grown tobacco obtained by five large growers in Sumatra as compared with the average yields obtained in the Connecticut Valley and in the Florida-Georgia areas of the United States during the 5-year period 1925–1929.

TABLE 13.—*Average yields obtained by the five principal tobacco growers in Sumatra compared with average yields in the Connecticut Valley and Florida-Georgia shade-grown areas of the United States, 1925–1929*

Company or area	Yield (pounds per acre)				
	1925	1926	1927	1928	1929
Sumatra:					
Deli Maatschappij	815	930	781	840	852
Senembah Maatschappij	996	923	1,039	1,099	993
Deli Batavia Maatschappij	875	916	873	901	809
Tabak Maatschappij "Arendsburg"	1,012	1,179	965	961	1,006
Cultuur Maatschappij de Oostkust	910	983	973	964	832
Connecticut Valley	1,052	1,004	900	867	1,174
Florida-Georgia	1,060	1,112	1,206	1,113	1,186

Source: Sumatra en Java Tabak, Dentz and Van der Breggen and Bureau of Agricultural Economics, Division of Crop Estimates, U. S. Department of Agriculture.

It should be remembered that a mere comparison of yields is not entirely adequate for measuring the financial outcome of a tobacco

crop. The proportion of high grades in the tobacco crop, more than in the staple crops, is the standard of measurement, but because of differences in grading in the several districts and because of variations from year to year, a comparison by grades is not feasible.

Labor supply.—In Sumatra all field work on the tobacco estates and also the heavier indoor labor are performed by Chinese coolies brought in from Swatow and Hong Kong by the estate managers, under an arrangement with the Netherland Government. Lighter indoor work, such as bunching leaves and stacking and restacking bunches, is done by Javanese women. Chinese are also employed in the sorting and grading—work which requires great care and expertness. The native Malay has neither the skill nor the capacity to perform labor on the tobacco crop.

To obtain these Chinese and Javanese workers, the companies bringing them in must advance the cost of transportation to and from China or Java, and supply free housing and free medical and hospital care. The Chinese worker is paid in the following manner: He receives a stipulated sum for every thousand plants he cultivates, a payment for every 40 leaves brought in at harvest, and later for his work in sorting the leaves. Against his accruing wages, he receives an advance every fortnight. At the end of the contract year he is paid under Government supervision whatever balance may be due.

When he falls behind in field work, the coolie must accept the services of a Javanese assistant whose wages are deducted from his account. If he is sick, the company pays for his hospital care and medicine, but he must pay the wages of the Javanese who acts as his substitute. Government taxes due from each worker must also be deducted from his account. Before the war the wages paid—averaged on a per diem basis—was 60 Dutch cents (24 cents). During the war it advanced to one florin (38.5 cents) but subsequently in 1923 was reduced to 75 Dutch cents (29 cents). A consular report from Medan, Sumatra, dated February 29, 1928, states that the average pay of coolies on estates was 50 to 60 Dutch cents (20 to 24 cents) per day for men, and 40 to 55 Dutch cents (15 to 22 cents) per day for women.

After the passage of the tariff act of 1930 domestic producers of wrapper tobacco applied to the Treasury Department for exclusion from entry of tobacco produced in Sumatra, claiming that this tobacco was produced by convict labor and is subject to the provisions of section 307. Hearings on this subject were held by the Treasury Department and the matter is now pending before the Commissioner of Customs.

In the Connecticut Valley shade growers must compete with the many factories in neighboring towns for their labor supply, consequently an adequate labor supply is one of their chief problems. According to the United States Department of Agriculture the estimated total earnings per day, including perquisites, of casual hired farm laborers in Connecticut in 1926 ranged from $3.24 to $5.74, with an average of $4.20. In the same year the estimated total average earnings of noncasual farm laborers in Connecticut was $89 per month. Figures for Florida show a variation of from $1 to $6, with an average of $2.66 per day for casual workers and $70 per month for noncasual workers. The local supply of labor is much more plentiful in Georgia and Florida than in Connecticut. In Connecticut the large companies are compelled to bring in much of their labor—sometimes negro labor from

the South. Because of the much higher standard of living in the United States and the more extensive employment of machinery, workers here are generally more efficient than the Chinese and Javanese laborers in Sumatra. This appears more clearly when the methods of production in the two countries are compared.

Comparison of methods of production in Sumatra and in the cigar-wrapper producing sections of the United States.—The most striking and important difference between the methods of producing wrapper leaf in Sumatra and in the United States is that there it is grown in the open field and here under expensive artificial shade. The preparation of seed beds and the culture of the plants before transplanting are very similar in Sumatra and in the two sections of the United States. In both countries the plants are protected in the beds by cheesecloth or other shade or by glass. The soil in the fields is all prepared by hand labor in Sumatra; by the use of modern machines in the United States. Planting is entirely a hand operation in Sumatra and is also the rule in the Florida-Georgia area of the United States, but in Connecticut, where labor is scarcer, most of the transplanting, except the rows in line with the posts, is done by machine. Cultivation is entirely a hand process in Sumatra, whereas in the United States horse and mule labor is often employed. Harvesting is by priming in all three areas and there is not much difference in the labor requirements for harvesting, fermentation, and grading. From this summarized comparison of the methods of producing wrapper in Sumatra and in the two principal United States areas it is clear that on the one hand wages are much lower in Sumatra and planters there are able to make large savings in labor and material because they are not put to the expense of shading their fields artificially, but that on the other hand because of the much greater use in the United States of labor-saving machinery in the fields the more expensive labor here is generally applied more efficiently.

ORGANIZATION OF THE WRAPPER-TOBACCO INDUSTRIES IN SUMATRA AND IN THE UNITED STATES

Large Dutch companies in Sumatra.—Five large companies in the Deli Maatschappij group in 1928 turned out about 90 per cent of the entire packing of the island. These companies are the powerful Deli Maatschappij, dominating the whole group, with an outturn in 1928 of 87,000 bales; the Senembah Maatschappij, with 48,000 bales; the Deli Batavia Maatschappij, with 41,000 bales; the Tabak Maatschappij "Arendsburg," with 20,000 bales; and the Cultuur Maatschappij "de Oostkust," with 17,000 bales. All five have main offices in Holland and the estates draw upon them for required funds through their bankers at Medan.

The Deli Maatschappij formed a protective alliance with the other tobacco corporations in Deli in order to restrict production, to maintain a high standard of excellence of product, and to hold the price at a profitable level. The controlling body, composed of the heads of the leading organizations, is known as the "Deli Planter's Vereeninging." The results of the experiment work of the Deli Proefstation in improving quality and fighting disease and insect pests are made available to the members of this association as well as to a limited number of outside companies who are willing to abide by certain prescribed rules.

The agreement to restrict output is revised annually as soon as prices of the most recent crop sold at Amsterdam are reported. The normal pre-war limitation was 250,000 bales, which was decreased during the war to 150,000 bales, and increased again in recent years. The total pack in 1928 was 242,000 bales.

Published reports indicate that the business of the large wrapper producing companies of Sumatra has been very profitable in recent years. Table 14 shows the capitalization of these companies and the dividends declared in the fiscal years 1925 to 1928.

TABLE 14.—*Outstanding capital in 1928 and dividends declared by the five principa. tobacco producers in Sumatra, 1925–1928* [1]

Company	Capitalization, 1928	Dividends declared			
		1925	1926	1927	1928 [2]
	Florins	*Per cent*	*Per cent*	*Per cent*	*Per cent*
Deli Maatschappij	25, 654, 000	[3] 45	[4] 28	[4] 28	([4])
Senembah Maatschappij	10, 500, 000	[3] 42	[3] 35	20	([3])
Deli Batavia Maatschappij	10, 920, 000	[5] 31	[6] 52	[6] 45	([6])
Tabak Maatschappij "Arendsburg"	4, 000, 000	[6] 50	[7] 60	[7] 60	([7])
Cultuur Maatschappij de Oostkust	13, 000, 000	5	10	7	--------

[1] Sumatra en Java Tabak, 1928, Dentz and Van der Breggen.
[2] Data on regular dividends not yet available.
[3] Extra 15.
[4] Extra 10.
[5] Extra 14.
[6] Extra 20.
[7] Extra 25.

Large-scale organization in the United States industry.—Wrapper tobacco production in the United States as well as in Sumatra lends itself to large-scale operation and to consolidation. The exceptionally large capital required for posts, wire, cloth or other items for shade has naturally led to the growth of corporation farming in this branch of the tobacco industry. In a product requiring such careful handling and such elaborate grading as wrapper tobacco and where standardization is so important, the large producer naturally has great advantages. It is therefore not surprising to find the history of the wrapper tobacco industry in the United States featured by the development of large organizations, principally through consolidations.

The largest company, the American Sumatra Tobacco Corporation,[3] was originally organized in 1910 under the laws of Georgia and acquired the holdings of some half dozen large company, firm, and individual growers of wrapper tobacco in Florida. Subsequently it acquired appreciable holdings in the Connecticut Valley. Following the World War the company operated at a loss and in 1925 went into receivership. It was reorganized in 1926 and has since had a fairly prosperous history. Either directly or through subsidiaries it now owns some 9,000 acres of farm land in Florida and Georgia and in addition nearly 22,000 acres of timberland there. Its holdings in the Connecticut Valley amount to more than 6,000 acres, and it owns an office and warehouse building in New York, and a warehouse in St. Louis as well as the necessary farm buildings and equipment and tobacco warehouses in the tobacco districts. In 1929, the valuation of

[3] Formerly the American Sumatra Tobacco Co., Poor's Industrial Section (1930), p. 236.

its physical property was over $5,000,000; the common stock outstanding, $2,884,000. The surplus amounted to $2,577,000 and the net income $715,000.

In 1928 another large company, the Hartman Tobacco Co.,[4] with an outstanding capitalization of about $3,500,000, was formed for growing shade tobacco in Connecticut by the merger of a number of smaller growers, so that at the present time shade-grown tobacco in the Connecticut Valley is produced by two large corporations and by a number of smaller companies. Much of the land under shade is owned outright by these companies, and other land is leased by them under various leasing arrangements. The interest of individual farmers in the Connecticut Valley in shade-grown tobacco is practically confined to leasing their farms to large companies and to working for them.

In the Florida-Georgia district the organization of the industry is somewhat different from that in the Connecticut Valley. About one-third of the total acreage of shade tobacco is planted by one large company, at least one-third more by some half dozen smaller concerns, and some planting is done by individual farmers either independently or under contract with the packers.

Discussion of cost data for Sumatra wrapper and for domestic shade-grown leaf.—Table 15 gives statistics compiled by Amsterdam brokers of estimated costs of production of wrapper tobacco in Sumatra compared with the average price realized for this tobacco in the Netherlands. The figures, covering the period 1910–1926, indicate that in most years a large profit was made.

TABLE 15.—*Estimated average costs of Sumatra tobacco compared with average selling price, 1910–1926*

Year	Production costs		Selling price	
	Florins per half kilo	Cents per pound [1]	Florins per half kilo	Cents per pound [1]
1910–1914	0.80–0.90	29.2–32.8	1.26	46.0
1919	1.85–1.95	65.7–69.2	3.03	107.6
1920	1.95–2.05	60.9–64.0	2.84	88.7
1921	1.90–2.00	58.0–61.0	1.94	59.2
1922	1.60–1.70	55.9–59.4	2.24	78.2
1923	1.35–1.45	47.9–51.4	2.51	89.0
1924	1.30–1.40	45.1–48.5	2.72	94.3
1925	1.20–1.30	43.7–47.4	2.30	83.8
1926	1.00–1.20	36.4–43.7	1.94	70.6

[1] Conversions based on prevailing rates of exchange for all years except 1910–1914, for which par value was used.

Source: Trade Promotion Series No. 89, U. S. Department of Commerce.

Such estimates of costs and average prices do not bear any necessary relation to the prices paid for Sumatra leaf imported into the United States. As it has been pointed out, United States buyers are as a rule interested only in the highest grades of Sumatra leaf and the prices they pay for it depend much more on the market conditions at the tobacco inscriptions at Amsterdam than on the cost of production of the leaf at Deli. Thus Consul Spamer, in a report prepared at Rotterdam on April 23, 1924, gives the following example of the

[4] Poor's Industrial Section (1930), p. 558.

way prices may run. A certain lot of "LV" tobacco, which was "taxed" (priced) at florins 2.71½ by the brokers, received a low bid of florins 3.95 and a winning high bid of florins 5.62. The actual cost of production of this particular lot, including freight to Amsterdam, was 90 Dutch cents. That there is no relation between the cost of Sumatra tobacco and the price paid by the American buyers is emphasized by the artificial restriction on production by annual agreements between producers.

Representatives of the Florida growers, appearing before the Ways and Means Committee in 1929, presented estimates of costs in Florida amounting to 71 cents per pound for farm expenditures, the most important items of cost being for labor, shade, and fertilizer. Included in these estimates was an item for shade sufficiently high to cover the cost of moving such shade each year to new land to avoid loss from black shank. This item, of course, would be considerably reduced if varieties should be developed sufficiently resistant to be profitably grown on the same land several years in succession. Packers' estimates of costs of packing in Florida range from 15 to 20 cents per pound, so that from these figures the total packed cost appears to be well under $1 per pound.

Producers' estimates indicate that both the farm and the packing costs of producing wrapper in Connecticut are somewhat higher than in Florida, but that the combined costs for the 1928 crop approximate $1 per pound. These cost data, although not obtained as the result of a cost investigation by the commission, are sufficient to indicate that costs of production, or a comparison of domestic and foreign costs, bear little relation to the duty of $2.10 per pound on wrapper tobacco fixed in the tariff act of 1922 or to that of $2.27½ per pound in the act of 1930.

FACTORS IMPORTANT TO CIGAR MAKERS IN SELECTING TYPES OF IMPORTED AND DOMESTIC CIGAR WRAPPER LEAF

Sumatra and Florida shade grown.—Any comparison of the several domestic and imported types of wrapper tobacco must be in rather general terms because of the great range of grades within each type and the variation in the same types from year to year. There are, however, certain outstanding characteristics of each that may be brought out in comparing them. The distinctive qualities desired in wrapper tobacco have been already described—uniformity of color, fine texture, small veins making up a pleasing appearance. It should also be neutral in taste or blend well with the other tobacco in the cigar; be graded and packed according to established standards; and there should be a large and dependable supply. In making his selection, the manufacturer must also carefully consider the cost of wrapper, as it is a significant item in the total cost of the cigar. The cost of wrapper is not, of course, the cost per pound of leaf but the cost per thousand cigars. This is a variant not only of the price of the leaf but also if its yield, i. e., the number of cigars that can on the average be covered with a pound of wrapper.

For many years Sumatra wrapper has been the standard by which other wrapper has been measured, because climatic and soil conditions in Sumatra are exceptionally adapted to producing good wrapper leaf, the highest grades of which come to the United States. Comparison will first be made between Sumatra leaf and Florida shade

grown. Florida shade leaf resembles the imported Sumatra perhaps more nearly than other domestic wrapper leaf. It is almost all used on 5-cent, or cheaper than 5-cent, cigars while Sumatra leaf, although used to a considerable extent on the cheaper cigars, is also used on the higher priced cigars. The closest comparison, therefore, is between the grades of Sumatra used in 5-cent cigars and Florida shade leaf. The average yield in cigar wrappers of Sumatra leaf is generally higher than that of Florida-Georgia shade grown. According to reports of manufacturers, from 2 to 2¼ pounds of the Florida shade-grown tobacco are required to wrap 1,000 cigars, as compared with 1.75 pounds to 2 pounds of Sumatra leaf. Yield is not only a matter of thinness of leaf but of the soundness, size, and shape of the leaf. In these respects the principal varieties developed in the Florida-Georgia region and in Sumatra are generally satisfactory. In taste both of these types are ordinarily mild, approximating the almost neutral taste considered desirable. Manufacturers have complained of the bitter taste of certain lots of Florida-Georgia and also of Sumatra leaf. Bitterness is not a quality of any one type of leaf but is the result of conditions of producing and of methods of handling particular lots, especially at harvest time and in the curing. In standardization of grading and packing, the score is somewhat in favor of Sumatra wrapper because of the fact that it is produced exclusively on large estates whose managers are closely associated and have for many years cooperated in standardizing their grades. In the Florida-Georgia district, where wrapper tobacco is grown by many large and small growers and is packed by various packers, some of whom are growers, there is much more diversity in grading and packing.

Sumatra, Cuba, and Connecticut Valley shade grown.—Connecticut Valley shade-grown wrapper is largely used on high-priced cigars, only the poorer or off-color grades as a rule being available for wrapping 5-cent cigars. Having a flavor that blends well with fine-flavored filler leaf imported from Cuba, Connecticut shade leaf is much used in place of Havana wrapper on cigars filled with Havana filler. In this use it scarcely competes with Sumatra leaf, the finer grades of which are not used to any great extent with Havana filler but with different combinations of domestic filler and binder leaf. In considering competition between the lower grades of Connecticut shade grown and Sumatra wrapper, it is important to note the considerable difference in the yield of the two sorts of leaf. As was previously noted, from 1¾ to 2 pounds of Sumatra leaf are required to wrap 1,000 cigars, whereas from 1¾ to 2½ pounds of Connecticut shade grown are required. The greater dependability of the supply of Sumatra noted in the comparison of Sumatra and Florida shade grown is equally true of the Sumatra as compared with Connecticut shade grown. But, because of the greater concentration of ownership in Connecticut, standardization of grading and packing has probably progressed further there than in the southern district, and consequently there is less difference in this respect from the Sumatra.

One important reason for the expansion of the use of Connecticut shade leaf with Havana filler has been the difficulty of obtaining Havana leaf suitable for wrapper at prices low enough to permit its use on medium-priced cigars. In consequence the use of Connecticut shade grown for this purpose has largely expanded and brands so

made up have become popular. Somewhat less Connecticut shade wrapper is required per thousand cigars than is required of Cuban wrapper, the yield of the latter being only about 1,000 cigars from 4 pounds. There is less standardization of grades and the supply of Cuban leaf for wrapper is less dependable than that of Connecticut leaf.

Java and Connecticut Valley shade grown.—It has been pointed out that imports of Java leaf amount to only a fraction of those of Sumatra leaf. Java wrapper is generally heavier and darker than Sumatra, and in this country is used on only a few brands having a rather limited demand. It competes most directly with the medium-priced grades of Connecticut Valley shade grown, as it is used mostly in cigars made to retail for 10 cents or more.

ADMINISTRATIVE PROVISIONS RELATING TO THE DUTY ON WRAPPER TOBACCO

The difficulties encountered in administering the duty on wrapper tobacco do not arise in importations of Sumatra or Java leaf packed in full wrapper bales, but in importations of Havana leaf from Cuba often packed in mixed bales of wrapper and filler. As the only manufacturers using Havana wrapper in the United States are those making clear Havana cigars, the problem particularly pertains to importations at Tampa and Key West, the centers of the clear Havana industry. The act of 1930, retaining the language and the definitions of the act of 1922, did nothing to lessen the difficulties of administration.

The general rate of duty on unstemmed wrapper in the act of 1930 is $2.27½ per pound with a duty on unstemmed filler of 35 cents per pound; the rates applicable to imports from Cuba are $1.82 and 28 cents, respectively. The difference between the two rates is so great that the differentiation of wrapper tobacco from filler is of considerable importance from an administrative point of view. The question arises, What constitutes wrapper tobacco for tariff purposes? That it is something different, so far as imported Cuban tobacco is concerned, from the actual standards of the domestic clear Havana industry is indicated by statistics of imports. Imports of wrapper from Cuba during the period, 1923–1928, averaged about 190,000 pounds, which at 4 pounds per thousand cigars—a reasonable average for Havana wrapper—would wrap less than 50,000,000 cigars. No statistics are available to indicate accurately the total annual production of clear Havana cigars in this country, but estimates made by manufacturers of such cigars range from 150,000,000 to 250,000,000. Evidently, not anything like enough Cuban tobacco was imported upon which the wrapper duty was paid to cover the domestic clear Havana cigars. Manufacturers in Tampa stated before the Senate Finance Committee that they wrapped a large percentage of their production with "filler" leaf and maintained that if they were forced to pay wrapper duty on all the leaf that they actually used for wrapper, they would have to go out of business.

Customs officials must classify and appraise the tobacco in its condition at the time of importation in accordance with the definitions of wrapper and filler in the law. The provision of the 1922

act, copied into the act of 1930, does not take as a criterion of wrapper tobacco the answer to the question, "Is it, or is it not, actually used for wrapper?" nor does it specify any physical test or objective standard for wrapper. The definition reads: "The term 'wrapper tobacco' as used in this title means that quality of leaf tobacco which has the requisite color, texture, and burn, and is of sufficient size for cigar wrappers, and the term 'filler tobacco' means all other leaf tobacco."

The standard is thus left indeterminate. What is the color requisite for wrapper for a clear Havana cigar? What texture or burn is requisite? What is sufficient size? The answers to these questions differ according to the size of the cigar, the particular crop of tobacco, and even the individual manufacturer. The very small manufacturer may be able to get wrappers out of leaf not usable for that purpose by the large factory.

In practice the tobacco examiner develops a more or less fixed subjective standard for wrapper practically on the basis of what he thinks good wrapper should be for a 10-cent cigar.

Havana tobacco is sorted in Cuba in order to separate the wrapper (capa) from the filler (rezago) leaf. But it seems probable that the standard for wrapper tobacco in Cuba averages higher than in the United States. Cuban manufacturers turn out a considerable percentage of high-grade, large-sized, expensive cigars requiring the finest type of wrapper.

The tariff act provides that the invoices of importations of leaf tobacco shall specify in detail whether it is wrapper or filler, its origin, and its quality. In the absence of a definite, objective standard for wrapper tobacco for duty purposes, the shipper sometimes finds it difficult properly to invoice his tobacco. He may, for example, designate a bale as containing less than 35 per cent wrapper, which, when examined by the customs officer, may be found by that officer's standards to contain over 35 per cent.

When a bale of tobacco is examined by the tobacco examiner, it is opened and the hands to be examined are taken out, carried to a well-lighted place, where the examiner sits down and carefully counts over and examines each leaf. Ordinarily 50 leaves constitute a hand of Havana tobacco. If the examiner finds an average of six leaves in each of the hands examined which come up to the standard that he has in mind for wrapper tobacco, he then assesses the wrapper duty on 12 per cent of the tobacco in the bale. Under the act of 1930, if a bale is found to contain more than 35 per cent of wrapper tobacco, the wrapper rate is assessed against the total weight of the bale; if it is found to contain 35 per cent or less, the wrapper rate is assessed only against the weight of that portion found to be wrapper. The 35 per cent division point is reported to be preferable from the administrative point of view to the 15 per cent division point of acts prior to 1922. Under those acts, customs officials naturally wished to be positive of their findings before assessing a whole bale at the wrapper rate when the wrapper percentage was slightly over 15 per cent.

The foregoing discussion brings out the importance of accurate invoicing of cigar tobacco, especially of tobacco in mixed wrapper and filler bales, in classification for duty purposes. With this end in

view, the following regulations have been adopted by the Treasury Department (published in Treasury Decision 44854):

[Text of paragraph 602, tariff act of 1930]

In pursuance of the foregoing paragraph and section 481 of the tariff act of 1930, which enumerates the required contents of invoices and authorizes the Secretary of the Treasury to require any other facts than those set out therein that may be deemed necessary to a proper appraisement, examination, and classification of the merchandise, the following regulations are hereby prescribed:

Invoices of imported tobacco must specify in detail the character of the tobacco contained in each bale, its origin as to country and province, the year of its production, and the grade or grades contained in each bale, specifying the numbers of carrots or pounds of each grade, when more than one grade is packed in a bale, the time when and the place where and from whom purchased, and the price paid or to be paid for each bale or package, if purchased by the bale or package, or for the vega or lot if purchased in bulk, and if obtained otherwise than by purchase, the actual market value per bale.

Invoices covering or including bales of tobacco which are part of a vega or lot purchased in bulk must contain or be accompanied by a full description of the vega or lot purchased, or, if such description has been furnished with a previous importation, specify the date and number of the consular invoice in which the same has been incorporated.

Packages or bales when containing filler leaf only shall be invoiced as filler: when containing both filler and wrapper, but not more than 35 per cent of wrapper, shall be invoiced as mixed; and when containing more than 35 per cent of wrapper, shall be invoiced as wrapper. Collectors will not permit entry of tobacco unless the invoice conforms to the above requirements.

In the examination of tobacco, at least one bale, box, or package in every ten, and at least one in every invoice, shall be examined; at least ten hands shall be examined in each examined bale, box, or package; and the leaves of no less than two hands taken from different carrots or portions of each bale of mixed tobacco shall be counted.

If any bale is found to contain 10 per cent more wrapper than that specified in the invoice or is found to disagree materially with the invoice specifications as to origin or grade and there is reasonable cause to suspect fraud, the collector will withhold delivery of the particular package so disagreeing and report the facts to the customs agent in charge for investigation. If the investigation discloses fraudulent invoicing, the package should be seized and the facts reported by the collector to the United States attorney for prosecution.

APPENDIX

Rates of duty—Leaf tobacco suitable for cigar wrapper

Act of—		Tariff classification	Rates of duty per pound
Year	Paragraph		
1883	246	Leaf tobacco, of which 85 per cent is of the requisite size and of the necessary fineness of texture to be suitable for wrappers, and of which more than 100 leaves are required to weigh a pound:	
		If not stemmed	$0.75
		If stemmed	1.00
1890	242	Leaf tobacco suitable for cigar-wrappers:	
		If not stemmed	2.00
		If stemmed	2.75
		Provided, That if any portion of any tobacco imported in any bale, box, or package, or in bulk shall be suitable for cigar-wrappers, the entire quantity of tobacco contained in such bale, box, or package, or bulk shall be dutiable; if not stemmed, at $2 per pound; if stemmed, at $2.75 per pound.	
1894	184	Wrapper tobacco, unstemmed, imported in any bale, box, package, or in bulk	1.50
		If stemmed	2.25
	185	*Provided*, That the term wrapper tobacco, whenever used in this Act, shall be taken to mean that quality of leaf tobacco known commercially as wrapper tobacco:	
		Provided further, That the term filler tobacco, whenever used in this Act, shall be taken to mean all leaf tobacco unmanufactured, not commercially known as wrapper tobacco:	
		Provided further, That if any leaf tobacco imported in any bale, box, package, or in bulk shall be the growth of different countries, or shall differ in quality and value, save as provided in the succeeding provision, then the entire contents of such bale, box, package, or in bulk shall be subject to the same duty as wrapper tobacco:	
		Provided further, That if any bale, box, package, or bulk of leaf tobacco of uniform quality contains exceeding 15 per cent thereof of leaves suitable in color, fineness of texture, and size for wrappers for cigars, then the entire contents of such bale, box, package, or bulk shall be subject to the same duty as wrapper tobacco:	
		Provided further, That collectors shall not permit entry to be made, except under regulations to be prescribed by the Secretary of the Treasury, of any leaf tobacco imported in any bale, box, package, or in bulk, unless the invoices covering the same shall specify in detail the character of the leaf tobacco in such bale, box, package, or in bulk, whether wrapper or filler tobacco, Quebrado or self-working bales, as the case may be:	
		And provided further, That in the examination for classification of any invoice of imported leaf tobacco at least 1 bale if less than 10 bales, and 1 bale in every 10 bales and more, if deemed necessary by the appraising officer, shall be examined by the appraiser or person authorized by law to make such examination, and for the purpose of fixing the classification and amount of duty chargeable on such invoice of leaf tobacco the examination of 10 hands out of each examined bale thereof shall be taken to be a legal examination.	
1897	213	Wrapper tobacco, and filler tobacco when mixed or packed with more than 15 per cent of wrapper tobacco, and all leaf tobacco the product of two or more countries or dependencies when mixed or packed together:	
		If unstemmed	1.85
		If stemmed	2.50
	214	The term wrapper tobacco as used in this Act means that quality of leaf tobacco which is suitable for cigar wrappers, and the term filler tobacco means all other leaf tobacco. Collectors of customs shall not permit entry to be made, except under regulations to be prescribed by the Secretary of the Treasury, of any leaf tobacco, unless the invoices of the same shall specify in detail the character of such tobacco, whether wrapper or filler, its origin and quality. In the examination for classification of any imported leaf tobacco, at least 1 bale, box, or package in every 10, and at least 1 in every invoice, shall be examined by the appraiser or person authorized by law to make such examination, and at least 10 hands shall be examined in each examined bale, box, or package.	
1909	220	Wrapper tobacco, and filler tobacco when mixed or packed with more than 15 per cent of wrapper tobacco, and all leaf tobacco the product of 2 or more countries or depenencies when mixed or packed together:	
		If unstemmed	1.85
		If stemmed	2.50
	221	The term wrapper tobacco as used in this section means that quality of leaf tobacco which is suitable for cigar wrappers, and the term filler tobacco means all other leaf tobacco. Collectors of customs shall not permit entry to be made, except under regulations to be prescribed by the Secretary of the Treasury, of any leaf tobacco, unless the invoices of the same shall specify in detail the character of such tobacco, whether wrapper or filler, its origin and quality. In the examination for classification of any imported leaf tobacco, at least 1 bale, box, or package in every 10, and at least 1 in every invoice, shall be examined by the appraiser or person authorized by law to make such examination, and at least 10 hands shall be examined in each examined bale, box, or package.	

Rates of duty—Leaf tobacco suitable for cigar wrapper—Continued

Act of—		Tariff classification	Rates of duty per pound
Year	Paragraph		
1909	Sec. 5	* * * *Provided*, That, except as otherwise hereinafter provided, all articles, the growth or product of or manufactured in the Philippine Islands from materials the growth or product of the Philippine Islands or of the United States, or of both, or which do not contain foreign materials to the value of more than 20 per cent of their total value, upon which no drawback of customs duties has been allowed therein, coming into the United States from the Philippine Islands shall hereafter be admitted free of duty except, in any fiscal year * * * wrapper tobacco and filler tobacco, when mixed or packed with more than 15 per cent of wrapper tobacco in excess of 300,000 pounds, * * *.	
1913	181	Wrapper tobacco, and filler tobacco when mixed or packed with more than 15 per cent of wrapper tobacco, and all leaf tobacco the product of 2 or more countries or dependencies when mixed or packed together:	
		If unstemmed	$1.85
		If stemmed	2.50
	182	The term wrapper tobacco as used in this section means that quality of leaf tobacco which has the requisite color, texture, and burn, and is of sufficient size for cigar wrappers, and the term filler tobacco means all other leaf tobacco. Collectors of customs shall not permit entry to be made, except under regulations to be prescribed by the Secretary of the Treasury, of any leaf tobacco, unless the invoices of the same shall specify in detail the character of such tobacco, whether wrapper or filler, its origin and quality. In the examination for classification of any imported leaf tobacco, at least 1 bale, box, or package in every 10, and at least 1 in every invoice, shall be examined by the appraiser or person authorized by law to make such examination, and at least 10 hands shall be examined in each examined bale, box, or package.	
Emergency 1921	25	Wrapper tobacco and filler tobacco when mixed or packed with more than 15 per cent of wrapper tobacco, and all leaf tobacco the product of 2 or more countries or dependencies when mixed or packed together:	
		If unstemmed	2.35
		If stemmed	3.00
		The term wrapper tobacco as used in this section means that quality of leaf tobacco which has the requisite color, texture, and burn, and is of sufficient size for cigar wrappers, and the term "filler tobacco" means all other leaf tobacco.	
1922	601	Wrapper tobacco, and filler tobacco when mixed or packed with more than 35 per cent of wrapper tobacco, and all leaf tobacco the product of 2 or more countries or dependencies when mixed or packed together:	
		If unstemmed	2.10
		If stemmed	2.75
	602	The term "wrapper tobacco" as used in this title means that quality of leaf tobacco which has the requisite color, texture, and burn, and is of sufficient size for cigar wrappers, and the term "filler tobacco" means all other leaf tobacco. Collectors of customs shall permit entry to be made, under rules and regulations to be prescribed by the Secretary of the Treasury, of any leaf tobacco when the invoices of the same shall specify in detail the character of such tobacco, whether wrapper or filler, its origin and quality. In the examination for classification of any imported leaf tobacco, at least 1 bale, box, or package in every 10, and at least 1 in every invoice, shall be examined by the appraiser or person authorized by law to make such examination, and at least 10 hands shall be examined in each examined bale, box, or package.	
1930	601	Wrapper tobacco, and filler tobacco when mixed or packed with more than 35 per cent of wrapper tobacco, and all leaf tobacco the product of 2 or more countries or dependencies when mixed or packed together:	
		If unstemmed	2.27½
		If stemmed	2.92½
	602	The term "wrapper tobacco" as used in this title means that quality of leaf tobacco which has the requisite color, texture, and burn, and is of sufficient size for cigar wrappers, and the term "filler tobacco" means all other leaf tobacco. Collectors of customs shall permit entry to be made, under rules and regulations to be prescribed by the Secretary of the Treasury, of any leaf tobacco when the invoices of the same shall specify in detail the character of such tobacco, whether wrapper or filler, its origin and quality. In the examination for classification of any imported leaf tobacco, at least 1 bale, box, or package in every 10, and at least 1 in every invoice, shall be examined by the appraiser or person authorized by law to make such examination, and at least 10 hands shall be examined in each examined bale, box, or package.	

BIBLIOGRAPHY

A. Sources of Information Concerning Domestic Industry

1. Interviews and reports of producers and manufacturers.
2. Tobacco Culture in Florida. W. B. Tisdale, Univ. of Fla. Agr. Exp. Sta., Bul. No. 198, June, 1928.
3. A Phytophthon Disease (Black Shank) of Tobacco. W. B. Tisdale and J. G. Kelley, Univ. of Fla. Agr. Exp. Sta., Bul. No. 179.
4. Progress Reports: Trials of Cigar Wrapper Tobacco for Resistance to Black Shank, 1927 and 1928. W. B. Tisdale.
5. The Supply and Distribution of Connecticut Valley Cigar Leaf Tobacco Samuel H. De Vault, Mass. Agr. Exp. Sta., Bul. No. 193, October, 1919.
6. Tobacco Culture. W. W. Garner, U. S. Department of Agriculture, Farmers' Bulletin, No. 571, April, 1929.
7. Tobacco Curing. W. W. Garner, U. S. Department of Agriculture, Farmers' Bulletin, No. 523, July, 1928.
8. Annual Reports of the Commissioner of Internal Revenue. U. S. Treasury Department.
9. Foreign Commerce and Navigation of the United States. U. S. Department of Commerce.
10. Tariff Readjustment, 1929. Hearings before the Committee on Ways and Means, House of Representatives, 70th Cong., 2d sess., Vol. VI, Schedule 6, Tobacco and Manufactures of.
11. Tariff Act of 1929. Hearings before a subcommittee of the Committee on Finance, United States Senate, 71st Cong., 1st sess., on H. R. 2667, Schedule 6, Tobacco and Manufactures of.
12. Debate in the Senate on Schedule 6. Congressional Record, 71st Cong., 1st Sess., vol. 71, No. 121, p. 5692 ff.
13. Cigar Manufacturing Entirely Changed by Modernized Machines. Herbert J. Laughton, "Tobacco," Sept. 26, 1929, p. 17.
14. Some Features of Tobacco History. Geo. K. Holmes, Am. Rep., Am. Hist. Assn., 1919, Vol. I.
15. Tobacco, Its History and Associations. F. W. Fairbhott, 1859.

B. Sources of Information Concerning Foreign Industries

1. Tobacco Production, Culture, and Trade in the Sumatra East Coast. Consul C. O. Spamer, Medan, Sumatra, Nov. 21, 1923.
2. Sale of Sumatra Leaf Tobacco in Amsterdam. Consul C. O. Spamer, Rotterdam, Netherlands, Apr. 23, 1924.
3. Tobacco Culture in the Vorstenland of Java. Dr. H. Miehe, "Der Tropenpflanzer," vol. 15, No. 9, No. 10, and No. 11.
4. The Dutch Tobacco Market. Consul C. O. Spamer, Amsterdam, Netherlands, Jan. 10, 1929.
5. Numerous other consular reports.
6. Statistisch Overzicht van Sumatra en Java Tabak. Dentz and Van der Breg gen, Amsterdam, 1929.
7. Inception of Shade Growing of Havana Tobacco on the Island of Cuba. E. de Laureal Slevin, "Tobacco," Nov. 25, 1926.
8. Tobacco Growing in Sumatra. Domingo B. Paguirigan, Phil. Agr. Rev., Vol. XVI, No. 1, 1923.
9. Growing Cuban Tobacco. Domingo B. Paguirigan, Phil. Agr. Rev., Vol. XVI, No. 3, 1923.
10. Half a Century With Tobacco. Morton R. Edwin.
11. Trade Promotion Series, No. 89, U. S. Department of Commerce.
12. Tobacco Trade of the Netherlands and the Netherland East Indies. Louise Moore.

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UNITED STATES TARIFF COMMISSION

REPORT

TO

THE UNITED STATES SENATE

ON

FISH AND OTHER MARINE PRODUCTS

LANDED IN THE UNITED STATES FROM THE HIGH SEAS AND FROM TERRITORIAL WATERS BY ALIENS AND BY CITIZENS

UNDER THE GENERAL PROVISIONS OF SECTION 332, TITLE III, PART II, TARIFF ACT OF 1930, IN COMPLIANCE WITH SENATE RESOLUTION 314, DATED JULY 3, 1930

REPORT No. 17

Second Series

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CONTENTS

Page

Letter of transmittal IV
Scope of the investigation 1
Summary of information obtained in the investigation 2

APPENDIX

Table 1. Landings of marine products in the United States by vessels of the type included in the investigation, 1929 5
Table 2. Number of American fishing vessels of the type included in the investigation, arranged according to State or Territory in which the vessel was officially recorded, 1929 5
Table 3. Landings of marine products in the United States by American fishing vessels of the type included in the investigation, arranged according to State or Territory in which the vessel was officially recorded, 1929 6
Table 4. Landings of marine products in the United States by American fishing vessels of the type included in the investigation, arranged according to species and State or Territory in which the vessel was officially recorded, 1929 8
Table 5. Landings of marine products in the United States by American fishing vessels owned by alien residents of the United States arranged according to nativity of owners, 1929 12
Table 6. Landings of marine products in the United States by American fishing vessels owned by alien residents of the United States, arranged according to nativity of owner and State or Territory in which the vessel was recorded, 1929 13
Table 7. Number and catch of American fishing vessels operated under charter, lease, or rental, 1929 16
Table 8. Restrictions and limitations upon alien fishermen with respect to the ownership and/or operation of vessels engaged in the commercial fisheries 17

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, April 30, 1931.

THE PRESIDENT OF THE SENATE,
Washington, D. C.

SIR: The United States Tariff Commission herewith submits its report on an investigation "of the entries of fish and other marine products into the United States from the high seas in vessels owned, chartered, leased, or rented, wholly or in part, by aliens," in response to Senate Resolution 314, dated July 3, 1930.

As no records of the citizenship of the owners of fishing vessels or of the sources of production were available, the data were collected at first hand. The commission was therefore required to canvass 56,000 vessel owners, obtaining from those engaged in commercial fishing a statement of citizenship and of the division of their catches between high seas and territorial waters. In order that a uniform method of dividing the catch would be followed, and solely for this purpose, it was necessary to determine a line of demarcation between high seas and territorial waters; to prepare charts covering the entire coast line of the United States; and to distribute these charts to all vessel owners.

Reports from individual vessel owners were obtained by mail and by personal canvass. The mailing was done at most of the coastal customs ports by typists in the employment of the commission. The initial mailing, together with follow-up mailing to delinquents, required the distribution of approximately 105,000 schedules.

Although the commission utilized its entire available personnel in the conduct of this investigation, it was found at the outset that to complete the work within a reasonable time it would have to obtain assistance from other departments of the Government. The commission wishes to express its appreciation of the fine spirit of cooperation shown by the departments and bureaus from which it sought assistance—the Bureau of Customs, the Bureau of Navigation, the Bureau of Fisheries, the Coast and Geodetic Survey, the Coast Guard, and the fisheries commissions of coastal States. Special credit is due the Bureau of Customs for most of the field work done in obtaining statistics from vessel owners, for direction of the work in Washington, and for emergency field work done by two members of this bureau detailed to the commission.

But for this cooperation it would have been difficult for the commission to conduct so extensive an investigation. A greater territory was covered than in any other investigation made by the commission and more schedules of information were received than in all other investigations. Compilation of the large volume of data, done in the commission's offices, required the services of a large number of our statistical staff for most of the period of the investigation. The amount expended on this investigation, exclusive of the salaries of the regular staff of the commission, amounted to about $19,000.

Respectfully submitted.

HENRY P. FLETCHER,
Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
JOHN LEE COULTER,
ALFRED P. DENNIS,
EDGAR B. BROSSARD,
LINCOLN DIXON,
Commissioners.

FISH AND OTHER MARINE PRODUCTS LANDED IN THE UNITED STATES FROM THE HIGH SEAS AND FROM TERRITORIAL WATERS OF THE UNITED STATES

This report sets forth the results of an investigation instituted on July 9, 1930, in compliance with Senate Resolution 314 of July 3, 1930, reading as follows:

Resolved, That the United States Tariff Commission be, and hereby is, requested to make an investigation of the entries of fish and other marine products into the United States from the high seas in vessels owned, chartered, leased, or rented, wholly or in part, by aliens, whether or not such aliens are domiciled in the United States.

SCOPE OF THE INVESTIGATION

Marine products brought into the United States from the high seas in vessels owned or leased by aliens are not shown separately in published statistics. Statistics issued by the Bureau of Fisheries show the domestic catch of marine products, but no distinction is made between catches of vessels owned by American citizens and those owned or leased by aliens, nor between catches from the high seas and from territorial waters. Similarly, statistics issued by the Bureau of Foreign and Domestic Commerce show imports of marine products into the United States, but no distinction is made between imports from the high seas and imports from foreign countries.

In segregating statistics of imports, the commission examined customs entry records and traced the movements of foreign whaling ships. Statistics were thus obtained on imports from the high seas in vessels registered in foreign countries.

The larger problem—that of dividing the catch of American vessels as between that taken on the high seas and in territorial waters and as between that taken by alien-owned and by citizen-owned vessels—required the collection of data at first hand.

Through the 25 coastal customs headquarters ports, the commission had questionnaires mailed to all owners of powered vessels engaged in the coastal fisheries. The questionnaire called for a statement of the citizenship of owners of all vessels and the sources of their catches. To supply vessel owners a basis for dividing their catches between high seas and territorial waters, the commission sent where feasible with each questionnaire a navigation chart of local waters showing a line of demarcation between the two. The chart contained the following notice:

The line between the high seas and territorial waters shown on this chart in red was drawn by the United States Tariff Commission for the sole purpose of facilitating the conduct of an investigation under Senate Resolution 314, Seventy-first Congress, second session, and is not to be regarded as having official sanction or significance for any other purpose.

The line was drawn for the purposes of this investigation in accordance with the method of delimitation proposed by the delegation of the United States at The Hague Conference for the Codification of International Law at the session of March 27, 1930. The details of this plan are given in the American Journal of International Law for July, 1930. The general method or process proposed for delimiting territorial waters was that of the envelope of the arcs of circles of a 3-mile radius drawn from the coast line of mean low water, with exceptions as to rocks, bays, and pockets between islands and between islands and the mainland.

In order to make a separate tabulation of production by alien-owned and by citizen-owned vessels, both citizens and aliens were asked to furnish production statistics. No effort was made to collect data on catches of rowboats and sailboats, except in Porto Rico, where almost all of the catch is landed by small unpowered craft. The investigation also excluded all fresh-water fish and certain shellfish, principally oysters and clams, none of which come from the high seas.

In substance, the commission limited its study to marine products brought by powered vessels into the United States from the high seas as compared with the same type of product brought in from territorial waters.

For all areas except Alaska, the figures obtained are for the calendar year 1929; the Alaskan figures are for the calendar year 1930. According to the Bureau of Fisheries the total domestic production of fish and other marine products in the period covered amounted to 3,500,000,000 pounds. Of this amount about 1,000,000,000 pounds consisted of products excluded from the commission's investigation

SUMMARY OF INFORMATION OBTAINED IN THE INVESTIGATION

1. Vessels included in the investigation numbered 21,546, of which 2,025, or 9.4 per cent, were owned by aliens, and 19,521, or 90.6 per cent, by citizens. Of the 2,025 alien-owned vessels, 7 were foreign and 2,018 American. Foreign vessels were registered as follows: British, 4; Mexican, 1; and Norwegian, 2. American vessels owned by alien residents divided according to nativity of owners were as follows: Japanese, 496; Italian, 455; Portuguese, 254; Norwegian, 159; Finnish, 151; Greek, 60; Canadian, 51; Swedish, 49; German, 30; English, 29; Spanish, 25; other and unclassified, 259.

2. Marine products landed by vessels included in the investigation were fish, lobsters, scallops, sponges, shrimp, whale oil, and Pacific coast crabs. The total landings amounted to 2,615,035,471 pounds, of which 1,035,398,891 pounds, or 39.6 per cent, was landed from the high seas, and 1,579,636,580 pounds, or 60.4 per cent, was landed from territorial waters. Citizen-owned vessels landed 2,338,423,676 pounds, or 89.4 per cent. Alien-owned vessels landed 276,611,795 pounds, or 10.6 per cent. Of the 276,611,795 pounds landed by alien-owned vessels, 43,636,820 pounds, or 15.8 per cent, was brought in by foreign vessels, and 232,974,975 pounds, or 84.2 per cent, by American vessels owned by alien residents of the United States.

(*a*) Of the 1,035,398,891 pounds brought in from the high seas, 890,396,413 pounds, or 86 per cent, was landed from vessels owned by citizens; 101,365,658 pounds, or 9.8 per cent, from vessels owned

by alien residents of the United States; and 43,636,820 pounds, or 4.2 per cent, from foreign vessels.

(*b*) Of the 1,579,636,580 pounds brought in from territorial waters, 1,448,027,263 pounds, or 91.7 per cent, was landed from vessels owned by citizens; and 131,609,317 pounds, or 8.3 per cent from vessels owned by alien residents of the United States.

3. Hawaii obtained 97 per cent of its supply from alien-owned vessels; California, 34 per cent; Georgia, 13 per cent; Oregon, 9 per cent; Connecticut, 6 per cent; New Jersey and Texas, 3 per cent; Florida, Louisiana, Maine, and Massachusetts, 2 per cent; and all other areas less than 1 per cent.

4. The proportionate amount of total catch of each of the principal species landed by alien-owned American vessels was as follows: Pacific coast crabs, 44 per cent; tuna, 36 per cent; mackerel, 29 per cent; barracuda, 29 per cent; herring and pilchards, 21 per cent; swordfish, 10 per cent; sponges, 10 per cent; lobsters, 5 per cent; shrimp, 5 per cent; other varieties, 4 per cent.

5. Under the navigation laws of the United States an alien is not permitted to be owner or master of a fishing vessel of five net tons or more. No coastal State or Territory, except Pennsylvania, denies an alien the right to own a fishing vessel. In 16 of the 25 coastal States and Territories, however, varying restrictions on aliens exist, such as denial of the right to engage in the fisheries, the assessment of additional license fees, and limitations on the kinds of gear used as well as on the varieties of fish taken.

The following table summarizes the information obtained in the investigation:

	Number	Per cent
Vessels included in the investigation:		
Foreign	7	
American—		
Owned by aliens	2,018	9.4
Owned by citizens	19,521	90.6
Total	21,546	100.0

	Pounds	Per cent
Fish and other marine products landed in the United States by vessels included in the investigation:		
Landed from high seas—		
In foreign vessels	43,636,820	4.2
In American vessels—		
Owned by aliens	101,365,658	9.8
Owned by citizens	890,396,413	86.0
Total	1,035,398,891	100.0
Landed from territorial waters—		
In foreign vessels		
In American vessels—		
Owned by aliens	131,609,317	8.3
Owned by citizens	1,448,027,263	91.7
Total	1,579,636,580	100.0
Total landings—		
In foreign vessels	43,636,820	1.7
In American vessels—		
Owned by aliens	232,974,975	8.9
Owned by citizens	2,338,423,676	89.4
Total	2,615,035,471	100.0

APPENDIX

The statistical data obtained by the commission in its investigation are given in seven tables appended hereto. These are followed by a table showing Federal, Territorial, and coastal State laws relating to vessel ownership and operation by aliens. (See Table 8, p. 17.)

Table 1 is a summary of the data contained in Tables 2 to 7.

Table 2 gives the number of American vessels owned by citizens and aliens, arranged according to State or Territory in which the vessel was recorded.

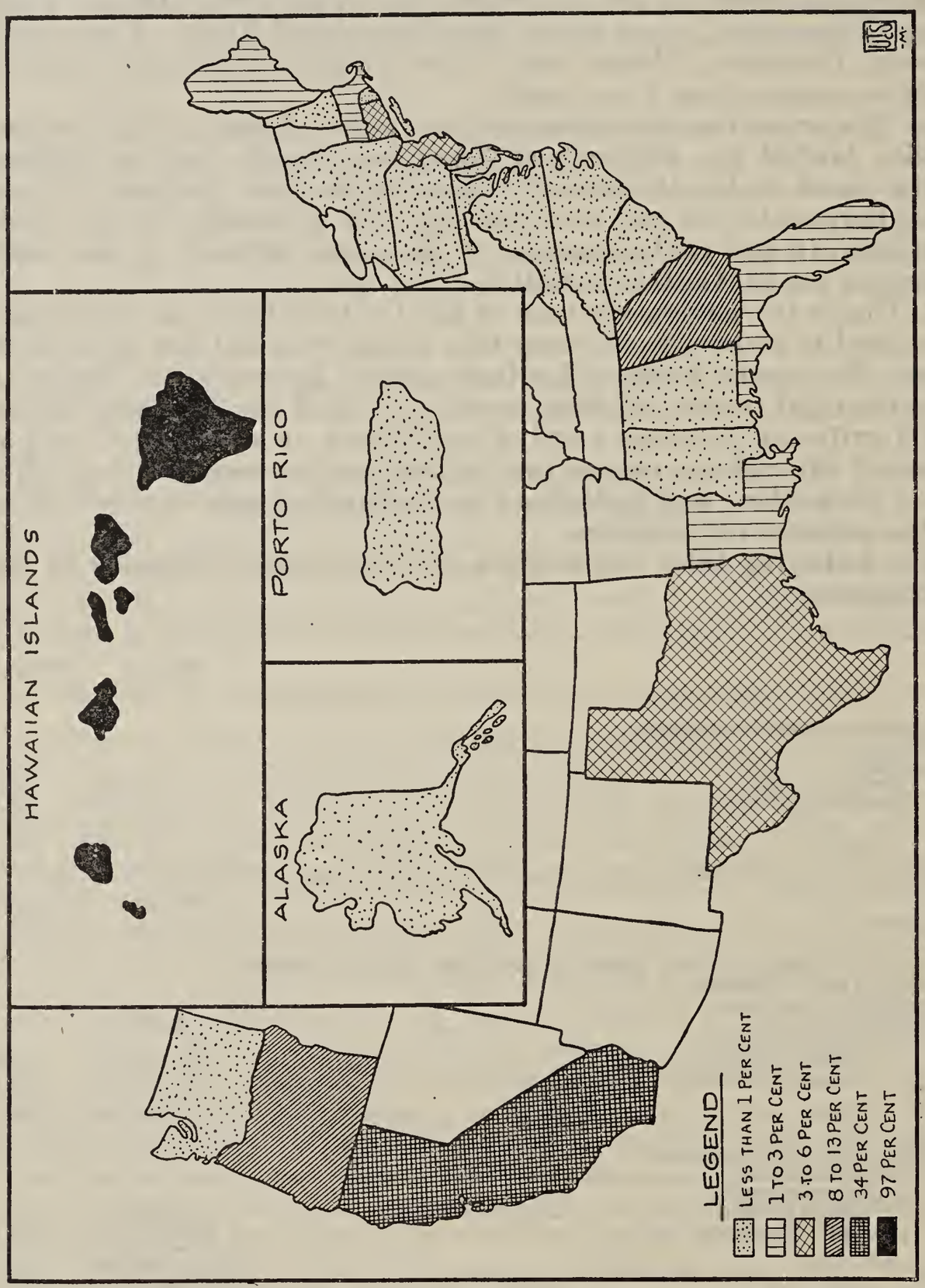

CHART 1.—Percentage of catch by alien-owned vessels in each State or Territory. (Tariff Commission investigation under S. R. 314, 71st Congress, 2d session.)

Table 3 gives the catch of marine products landed from the high seas and from territorial waters by alien-owned and citizen-owned American vessels, arranged according to State or Territory in which the vessel was recorded.

Table 4 gives the catch of marine products landed from the high seas and from territorial waters by alien-owned and citizen-owned American vessels, arranged according to species and according to State or Territory in which the vessel was recorded.

Table 5 gives the catch of marine products landed from the high seas and from territorial waters by American vessels owned by alien residents of the United States, arranged according to the nativity of the owner of the vessel.

Table 6 gives the catch of marine products landed from the high seas and from territorial waters by American vessels owned by alien residents of the United States, arranged according to the nativity of the owner of the vessel and State or Territory in which the vessel was recorded.

Table 7 gives the number of American fishing vessels operated under charter, lease, or rental, arranged according to State or Territory in which the vessel was recorded.

TABLE 1.—*Landings of marine products in the United States by vessels of the type included in the investigation, 1929*

Nationality of vessel and citizenship of owner and lessee	Vessels	Catch of fish and other marine products brought into the United States		
		From high seas	From territorial waters	Total
American vessels (1929–30): [1]	*Number*	*Pounds*	*Pounds*	*Pounds*
Owned by—				
Aliens	2,018	101,365,658	131,609 317	232,974,975
Citizens	19,521	890,396,413	1,448,027,263	2,338,423,676
Total	21,539	991,762,071	1,579,636,580	2,571,398,651
Vessels (included above), leased by—				
Citizens to citizens	435	2,176,662	44,882,136	47,058,798
Citizens to aliens	32	365,791	1,938,760	2,304,551
Aliens to aliens	11	142,437	152,817	295,254
Aliens to citizens	4	34,200	23,160	57,360
Total	482	2,719,090	46,996,873	49,715,963
Foreign vessels (1929): [2]				
British	4	29,980	----------	29,980
Mexican	1	11,100	----------	11,100
Norwegian	2	43,595,740	----------	43,595,740
Total	7	43,636,820	----------	43,636,820
All vessels (excluding duplication)	21,546	1,035,398,891	1,579,636,580	2,615,035,471

[1] For American vessels the data are from reports submitted for certain classes of vessels. *See* "Scope of the Investigation," p. 1. Alaskan statistics are for 1930; all other areas, 1929.

[2] Landings of foreign vessels were as follows: 29,980 pounds of halibut and sablefish landed in Alaska by British vessels; 11,100 pounds of lobsters and barracuda landed in California by Mexican vessels; and 43,595,740 pounds of whale oil landed in New York by Norwegian vessels.

TABLE 2.—*Number of American fishing vessels of the type included in the investigation, arranged according to State or Territory in which the vessel was officially recorded, 1929* [1]

State or Territory	Vessels owned by aliens residing in the United States	Vessels owned by citizens of the United States	Total	State or Territory	Vessels owned by aliens residing in the United States	Vessels owned by citizens of the United States	Total
	Number	*Number*	*Number*		*Number*	*Number*	*Number*
Alabama	1	217	218	New Jersey	58	763	821
Alaska [2]	172	1,946	2,118	New York	27	581	608
California	768	789	1,557	North Carolina	2	1,285	1,287
Connecticut	37	296	333	Oregon	100	1,207	1,307
Delaware	3	142	145	Pennsylvania	----------	10	10
Florida	107	2,110	2,217	Porto Rico	2	265	267
Georgia	21	89	110	Rhode Island	8	438	446
Hawaii	351	25	376	South Carolina	----------	38	38
Louisiana	26	1,155	1,181	Texas	8	251	259
Maine	41	2,171	2,212	Virginia	1	1,269	1,270
Maryland	----------	665	665	Washington	45	1,845	1,890
Massachusetts	235	1,577	1,812				
Mississippi	3	338	341				
New Hampshire	2	49	51	Total	2,018	19,521	21,539

[1] From reports submitted for certain classes of vessels. *See* "Scope of the Investigation," p. 1.

[2] Alaskan statistics are for the year 1930.

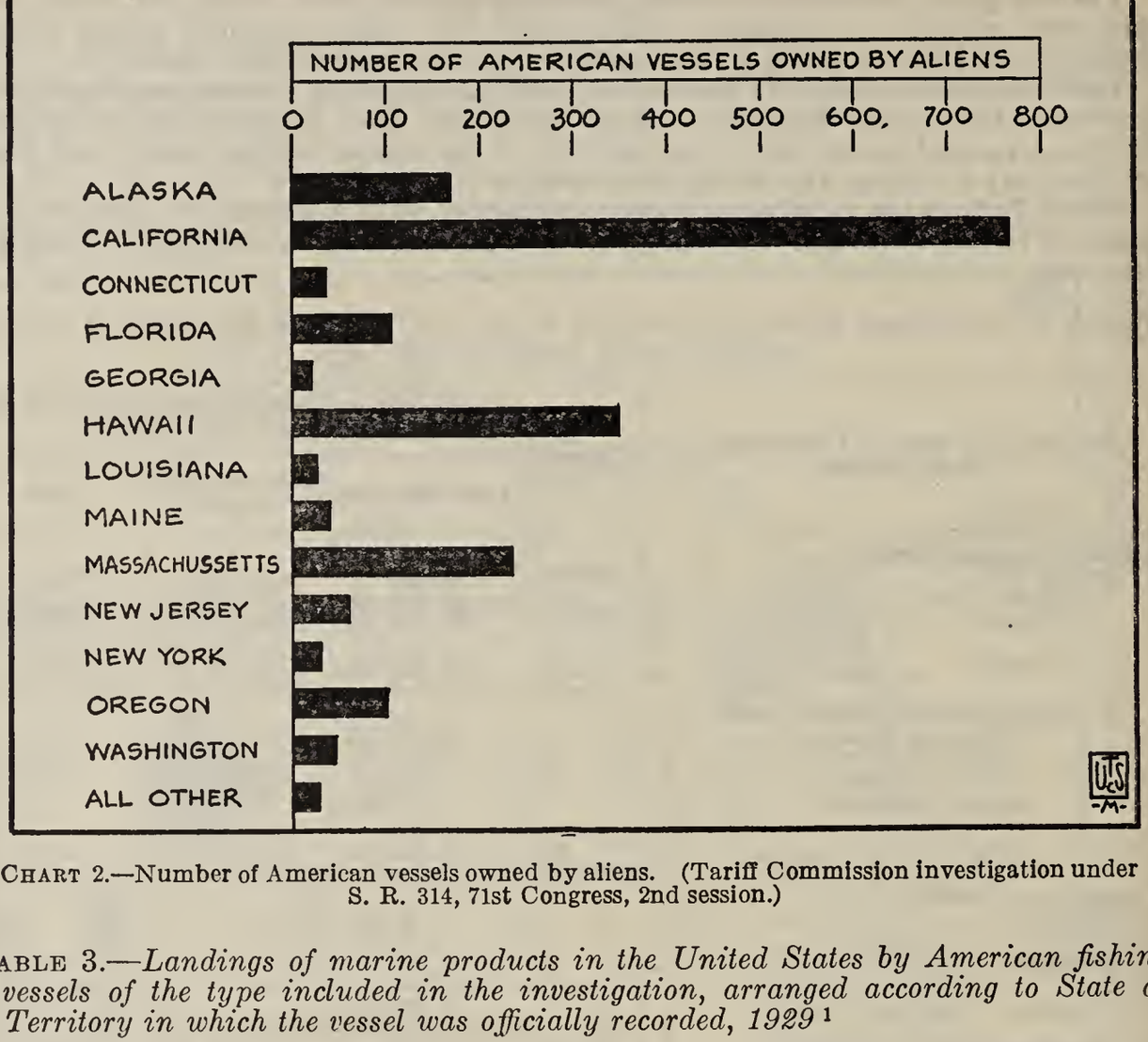

CHART 2.—Number of American vessels owned by aliens. (Tariff Commission investigation under S. R. 314, 71st Congress, 2nd session.)

TABLE 3.—*Landings of marine products in the United States by American fishing vessels of the type included in the investigation, arranged according to State or Territory in which the vessel was officially recorded, 1929* [1]

State or Territory	Landed by American vessels owned by alien residents of the United States			Landed by American vessels owned by citizens of the United States		
	From high seas	From territorial waters	Total	From high seas	From territorial waters	Total
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Alabama	8,000	18,117	26,117	1,684,130	5,317,189	7,001,319
Alaska [2]	41,296	3,317,919	3,359,215	19,027,426	370,024,339	389,051,765
California	86,798,589	113,794,669	200,593,258	182,851,495	212,062,903	394,914,398
Connecticut	385,400	465,656	851,056	9,272,830	4,039,263	13,312,093
Delaware		71,869	71,869	21,108,939	13,331,793	34,440,732
Florida	1,463,819	1,209,592	2,673,411	19,312,852	94,349,938	113,662,790
Georgia	402,700	181,710	584,410	2,068,792	1,942,908	4,011,700
Hawaii	4,990,597	5,576,588	10,567,185	41,325	264,865	306,190
Louisiana	221,350	292,839	514,189	8,351,394	15,570,826	23,922,220
Maine	388,000	1,800,055	2,188,055	62,086,723	84,175,321	146,262,044
Maryland				1,519,190	17,103,687	18,622,877
Massachusetts	3,663,457	3,675,049	7,338,506	275,332,607	41,591,104	316,923,711
Mississippi	20,000	70,000	90,000	2,971,189	7,058,370	10,029,559
New Hampshire	75	2,500	2,575	487,851	348,229	836,080
New Jersey	1,037,380	414,494	1,451,874	22,716,820	24,485,086	47,201,906
New York	118,391	210,219	328,610	67,358,724	31,968,167	99,326,891
North Carolina	18,000	7,000	25,000	47,175,546	122,855,101	170,030,647
Oregon	1,328,994	99,407	1,428,401	2,714,850	12,181,204	14,896,054
Pennsylvania				6,900	28,965	35,865
Porto Rico		16,654	16,654	70,490	2,203,874	2,274,364
Rhode Island	17,500	6,610	24,110	14,057,952	19,663,915	33,721,867
South Carolina				727,202	337,611	1,064,813
Texas	107,685	167,000	274,685	3,065,097	5,867,231	8,932,328
Virginia		42,400	42,400	82,352,812	220,674,111	303,026,923
Washington	354,425	168,970	523,395	44,033,277	140,581,263	184,614,540
Total	101,365,658	131,609,317	232,974,975	890,396,413	1,448,027,263	2,338,423,676

[1] From reports submitted for certain classes of vessels. *See* "Scope of the Investigation," p. 1.
[2] Alaskan statistics are for the year 1930.

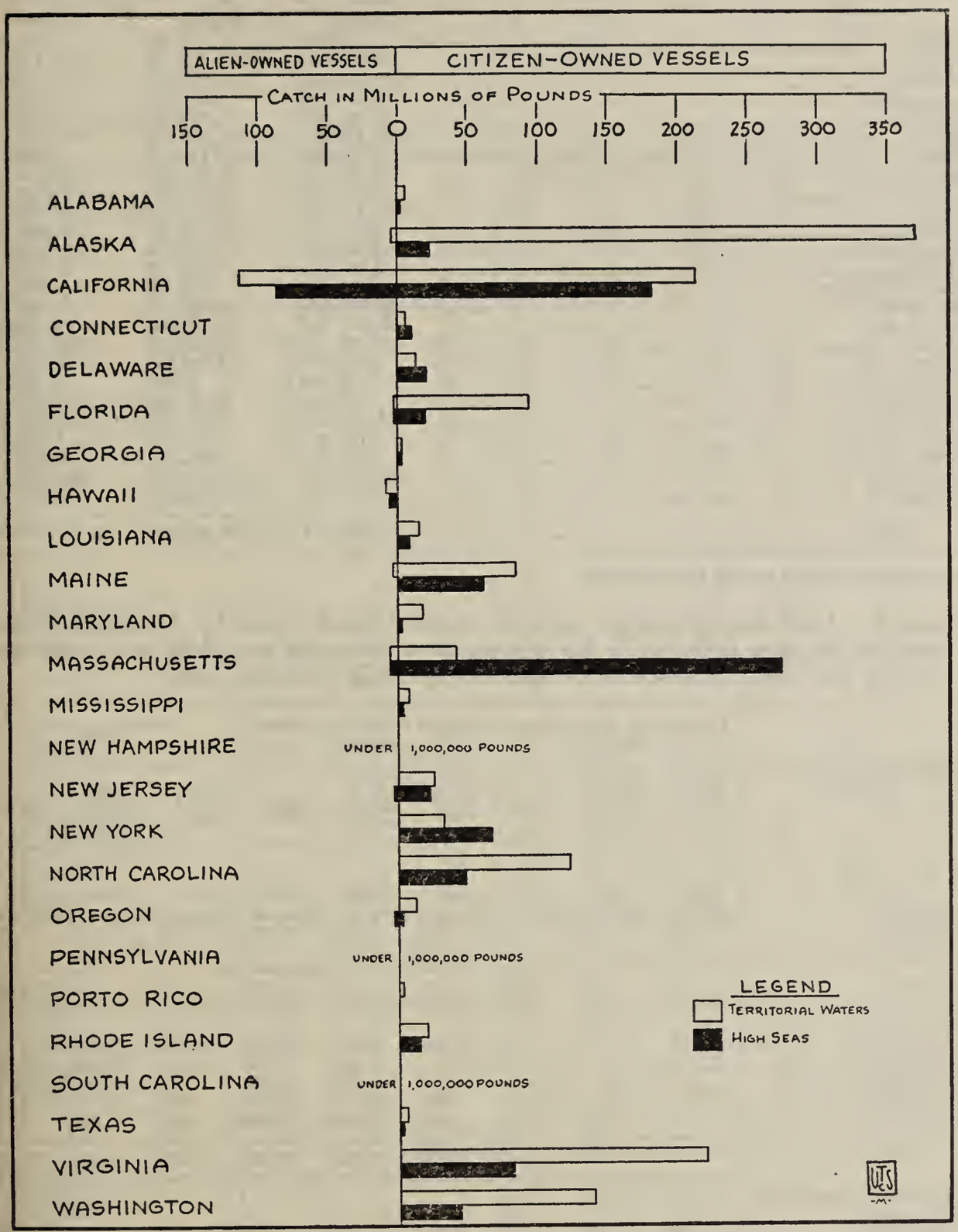

CHART 3.—Marine products landed in the United States in 1929 by American vessels. (Tariff Commission investigation under S. R. 314, 71st Congress, 2d session.)

TABLE 3.—*Landings of marine products in the United States by American fishing vessels of the type included in the investigation, arranged according to State or Territory in which the vessel was officially recorded, 1929*—Continued

State or Territory	Total landed by American vessels		
	From high seas	From territorial waters	Total
	Pounds	*Pounds*	*Pounds*
Alabama	1,692,130	5,335,306	7,027,436
Alaska [2]	19,068,722	373,342,258	392,410,980
California	269,650,084	325,857,572	595,507,656
Connecticut	9,658,230	4,504,919	14,163,149
Delaware	21,108,939	13,403,662	34,512,601
Florida	20,776,671	95,559,530	116,336,201
Georgia	2,471,492	2,124,618	4,596,110
Hawaii	5,031,922	5,841,453	10,873,375
Louisiana	8,572,744	15,863,665	24,436,409
Maine	62,474,723	85,975,376	148,450,099
Maryland	1,519,190	17,103,687	18,622,877
Massachusetts	278,996,064	45,266,153	324,262,217
Mississippi	2,991,189	7,128,370	10,119,559
New Hampshire	487,926	350,729	838,655
New Jersey	23,754,200	24,899,580	48,653,780
New York	67,477,115	32,178,386	99,655,501
North Carolina	47,193,546	122,862,101	170,055,647
Oregon	4,043,844	12,280,611	16,324,455
Pennsylvania	6,900	28,965	35,865
Porto Rico	70,490	2,220,528	2,291,018
Rhode Island	14,075,452	19,670,525	33,745,977
South Carolina	727,202	337,611	1,064,813
Texas	3,172,782	6,034,231	9,207,013
Virginia	82,352,812	220,716,511	303,069,323
Washington	44,387,702	140,750,233	185,137,935
Total	991,762,071	1,579,636,580	2,571,398,651

[2] Alaskan statistics are for the year 1930.

TABLE 4.—*Landings of marine products in the United States by American fishing vessels of the type included in the investigation, arranged according to species and State or Territory in which the vessel was officially recorded, 1929* [1]

Species and State or Territory	Caught by alien-owned vessels			Caught by citizen-owned vessels			Total		
	High seas	Territorial waters	Total	High seas	Territorial waters	Total	High seas	Territorial waters	Total
FISH	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Barracuda:									
California	488	467	955	921	1,371	2,292	1,409	1,838	3,247
Other [2]				6	8	14	6	8	14
Total	488	467	955	927	1,379	2,306	1,415	1,846	3,261
Butterfish:									
New Jersey				1,142	2,994	4,136	1,142	2,994	4,136
New York					1,266	1,266		1,266	1,266
Rhode Island				79	2,150	2,229	79	2,150	2,229
Virginia				688	5,504	6,192	688	5,504	6,192
Other [2]	1	11	12	407	1,193	1,600	408	1,204	1,612
Total	1	11	12	2,316	13,107	15,423	2,317	13,118	15,435
Cod, haddock, hake, pollock, cusk:									
California	20	30	50	1,168	732	1,900	1,188	762	1,950
Connecticut	229	160	389	922	55	977	1,151	215	1,366
Maine	367	828	1,195	13,198	18,867	32,065	13,565	19,695	33,260
Massachusetts	2,105	1,513	3,618	211,289	16,054	227,343	213,394	17,567	230,961
New Jersey	246	92	338	3,206	949	4,155	3,452	1,041	4,493
New York	26	23	49	55,909	655	56,564	55,935	678	56,613
Rhode Island	16	1	17	9,272	9,058	18,330	9,288	9,059	18,347
Washington				1,346	42	1,388	1,346	42	1,388
Other [2]	(3)	35	35	415	963	1,378	415	998	1,413
Total	3,009	2,682	5,691	296,725	47,375	344,100	299,734	50,057	349,791

[1] From reports submitted for certain classes of vessels. *See* "Scope of the Investigation," p. 1.
[2] States and Territories having a production of less than 1,000,000 pounds have been combined.
[3] Less than 500 pounds.

TABLE 4.—*Landings of marine products in the United States by American fishing vessels of the type included in the investigation, arranged according to species and State or Territory in which the vessel was officially recorded, 1929*—Continued

Species and State or Territory	Caught by alien-owned vessels			Caught by citizen-owned vessels			Total		
	High seas	Territorial waters	Total	High seas	Territorial waters	Total	High seas	Territorial waters	Total
FISH—continued	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Croaker:									
Maryland	----	----	----	229	1,043	1,272	229	1,043	1,272
New Jersey	5	6	11	1,154	1,115	2,269	1,159	1,121	2,280
North Carolina	----	----	----	2,452	12,154	14,606	2,452	12,154	14,606
Virginia	----	9	9	2,152	26,379	28,531	2,152	26,388	28,540
Other [2]	----	16	16	723	398	1,121	723	414	1,137
Total	5	31	36	6,710	41,089	47,799	6,715	41,120	47,835
Flounder:									
California	140	109	249	18,196	2,390	20,586	18,336	2,499	20,835
Connecticut	61	217	278	3,189	1,948	5,137	3,250	2,165	5,415
Maine	----	50	50	361	904	1,265	361	954	1,315
Massachusetts	715	876	1,591	15,639	4,525	20,164	16,354	5,401	21,755
New Jersey	59	[3]	59	1,371	821	2,192	1,430	821	2,251
New York	29	127	156	2,954	3,487	6,441	2,983	3,614	6,597
Rhode Island	----	----	----	2,812	2,120	4,932	2,812	2,120	4,932
Virginia	----	----	----	721	1,102	1,823	721	1,102	1,823
Other [2]	[3]	1	1	556	1,705	2,261	556	1,706	2,262
Total	1,004	1,380	2,384	45,799	19,002	64,801	46,803	20,382	67,185
Halibut:									
Alaska [4]	7	309	316	17,952	4,180	22,132	17,959	4,489	22,448
Massachusetts	[3]	----	[3]	2,157	88	2,245	2,157	88	2,245
Washington	[3]	----	[3]	9,486	784	10,270	9,486	784	10,270
Other [2]	1	1	2	374	77	451	375	78	453
Total	8	310	318	29,969	5,129	35,098	29,977	5,439	35,416
Herring and pilchard:									
Alaska [4]	----	128	128	85	68,430	68,515	85	68,558	68,643
California	56,006	98,557	154,563	106,622	193,711	300,333	162,628	292,268	454,896
Maine	----	825	825	44,759	54,901	99,660	44,759	55,726	100,485
Maryland	----	----	----	57	9,793	9,850	57	9,793	9,850
Massachusetts	447	514	961	4,000	3,701	7,701	4,447	4,215	8,662
North Carolina	----	----	----	1,509	12,105	13,614	1,509	12,105	13,614
Rhode Island	----	----	----	19	1,012	1,031	19	1,012	1,031
Virginia	----	18	18	1,498	26,755	28,253	1,498	26,773	28,271
Washington	----	----	----	7,178	45,704	52,882	7,178	45,704	52,882
Other [2]	----	----	----	21	974	995	21	974	995
Total	56,453	100,042	156,495	165,748	417,086	582,834	222,201	517,128	739,329
Mackerel:									
California	9,007	8,896	17,903	3,717	3,811	7,528	12,724	12,707	25,431
Maine	20	50	70	333	2,370	2,703	353	2,420	2,773
Massachusetts	170	191	361	25,386	5,411	30,797	25,556	5,602	31,158
New Jersey	11	[3]	11	712	348	1,060	723	348	1,071
Rhode Island	----	----	----	429	802	1,231	429	802	1,231
Other [2 5]	36	66	102	364	795	1,159	400	861	1,261
Total	9,244	9,203	18,447	30,941	13,537	44,478	40,185	22,740	62,925
Menhaden:									
Connecticut	1	----	1	4,007	1,126	5,133	4,008	1,126	5,134
Delaware	----	----	----	20,986	11,695	32,681	20,986	11,695	32,681
Florida	----	6	6	----	51,516	51,516	----	51,522	51,522
New Jersey	----	----	----	1,626	2,234	3,860	1,626	2,234	3,860
New York	----	----	----	2,160	21,056	23,216	2,160	21,056	23,216
North Carolina	----	----	----	38,980	73,064	112,044	38,980	73,064	112,044
Virginia	----	----	----	70,781	119,759	190,540	70,781	119,759	190,540
Other [2]	----	----	----	89	5	94	89	5	94
Total	1	6	7	138,629	280,455	419,084	138,630	280,461	419,091

[2] States and Territories having a production of less than 1,000,000 pounds have been combined.
[3] Less than 500 pounds.
[4] Alaskan statistics are for the year 1930.
[5] Part of the Porto Rican production of mackerel, mullet, and red snapper is included in "Other."

TABLE 4.—*Landings of marine products in the United States by American fishing vessels of the type included in the investigation, arranged according to species and State or Territory in which the vessel was officially recorded, 1929*—Continued

Species and State or Territory	Caught by alien-owned vessels			Caught by citizen-owned vessels			Total		
	High seas	Territorial waters	Total	High seas	Territorial waters	Total	High seas	Territorial waters	Total
FISH—continued									
Mullet:	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
Alabama				240	1,980	2,220	240	1,980	2,220
Florida	89	132	221	1,125	20,704	21,829	1,214	20,836	22,050
Mississippi				599	1,548	2,147	599	1,548	2,147
North Carolina				657	3,496	4,153	657	3,496	4,153
Other [2] [5]	2	7	9	51	46	97	53	53	106
Total	91	139	230	2,672	27,774	30,446	2,763	27,913	30,676
Red snapper:									
Florida	11	9	20	7,506	81	7,587	7,517	90	7,607
Other [2] [5]				2,118	32	2,150	2,118	32	2,150
Total	11	9	20	9,624	113	9,737	9,635	122	9,757
Salmon:									
Alaska [4]	34	2,835	2,869	648	293,449	294,097	682	296,284	296,966
California	789	825	1,614	1,160	576	1,736	1,949	1,401	3,350
Oregon	1,298	97	1,395	2,237	11,012	13,249	3,535	11,109	14,644
Washington	349	169	518	16,178	92,537	108,715	16,527	92,706	109,233
Other [2]				36	109	145	36	109	145
Total	2,470	3,926	6,396	20,259	397,683	417,942	22,729	401,609	424,338
Shad:									
Maryland				20	1,387	1,407	20	1,387	1,407
North Carolina				283	2,416	2,699	283	2,416	2,699
Virginia		7	7	280	9,908	10,188	280	9,915	10,195
Other [2]	10	525	535	44	1,765	1,809	54	2,290	2,344
Total	10	532	542	627	15,476	16,103	637	16,008	16,645
Squeteague:									
Delaware		23	23	104	974	1,078	104	997	1,101
Florida	[3]	46	46	317	2,784	3,101	317	2,830	3,147
Maryland				359	1,600	1,959	359	1,600	1,959
New Jersey	8	36	44	3,617	5,402	9,019	3,625	5,438	9,063
New York	[3]		[3]	58	980	1,038	58	980	1,038
North Carolina				964	6,561	7,525	964	6,561	7,525
Virginia		9	9	3,200	23,682	26,882	3,200	23,691	26,891
Other [2]	21	45	66	100	1,309	1,409	121	1,354	1,475
Total	29	159	188	8,719	43,292	52,011	8,748	43,451	52,199
Swordfish:									
Massachusetts	112	21	133	7,143	195	7,338	7,255	216	7,471
Other [2]	800	142	942	1,783	150	1,933	2,583	292	2,875
Total	912	163	1,075	8,926	345	9,271	9,838	508	10,346
Tuna:									
California	17,950	978	18,928	41,932	4,567	46,499	59,882	5,545	65,427
Hawaii	4,196	2,747	6,943	16	25	41	4,212	2,772	6,984
Other [2]	2	[3]	2	141	139	280	143	139	282
Total	22,148	3,725	25,873	42,089	4,731	46,820	64,237	8,456	72,693
Whiting:									
Massachusetts		109	109	79	6,830	6,909	79	6,939	7,018
New Jersey				899	4,991	5,890	899	4,991	5,890
Rhode Island				132	1,317	1,449	132	1,317	1,449
Other [2]	53	6	59	56	790	846	109	796	905
Total	53	115	168	1,166	13,928	15,094	1,219	14,043	15,262
Other:									
California	1,957	1,672	3,629	3,053	2,071	5,124	5,010	3,743	8,753
Florida	264	320	584	6,672	12,633	19,305	6,936	12,953	19,889
Hawaii	151	2,691	2,842	17	230	247	168	2,921	3,089

[2] States and Territories having a production of less than 1,000,000 pounds have been combined.
[3] Less than 500 pounds.
[4] Alaskan statistics are for the year 1930.
[5] Part of the Porto Rican production of mackerel, mullet, and red snapper is included in "Other."

TABLE 4.—*Landings of marine products in the United States by American fishing vessels of the type included in the investigation, arranged according to species and State or Territory in which the vessel was officially recorded, 1929*—Continued.

Species and State or Territory	Caught by alien-owned vessels			Caught by citizen-owned vessels			Total		
	High seas	Territorial waters	Total	High seas	Territorial waters	Total	High seas	Territorial waters	Total
FISH—continued									
Other—Continued.	*1,000 Pounds*	*1,000 Pounds*	*1,000 Pounds*	*1,000 Pounds*	*1,000 Pounds*	*1,000 Pounds*	*1,000 Pounds*	*1,000 Pounds*	*1,000 Pounds*
Louisiana	4	17	21	78	1,168	1,246	82	1,185	1,267
Maine		1	1	1,354	708	2,062	1,354	709	2,063
Maryland				159	2,745	2,904	159	2,745	2,904
Massachusetts	85	259	344	8,862	1,261	10,123	8,947	1,520	10,467
New Jersey	607	244	851	8,367	4,983	13,350	8,974	5,227	14,201
New York	6	54	60	4,298	2,190	6,488	4,304	2,244	6,548
North Carolina	18		18	1,942	9,752	11,694	1,960	9,752	11,712
Porto Rico [5]		17	17	68	2,122	2,190	68	2,139	2,207
Rhode Island		6	6	374	2,420	2,794	374	2,426	2,800
Texas		42	42	63	1,275	1,338	63	1,317	1,380
Virginia				2,765	7,400	10,165	2,765	7,400	10,165
Washington	5	[3]	5	2,999	660	3,659	3,004	660	3,664
Other [2]	59	53	112	1,547	1,469	3,016	1,606	1,522	3,128
Total	3,156	5,376	8,532	42,618	53,087	95,705	45,774	58,463	104,237
Total fish	99,093	128,276	227,369	854,464	1,394,588	2,249,052	953,557	1,522,864	2,476,421
OTHER PRODUCTS									
Crabs (Pacific coast):									
California	15	1,543	1,558	44	742	786	59	2,285	2,344
Other [2]		1	1	422	814	1,236	422	815	1,237
Total	15	1,544	1,559	466	1,556	2,022	481	3,100	3,581
Lobsters:									
California	270	58	328	550	131	681	820	189	1,009
Maine	1	42	43	904	5,995	6,899	905	6,037	6,942
Massachusetts	26	101	127	155	2,174	2,329	181	2,275	2,456
Other [2]	141	54	195	951	1,404	2,355	1,092	1,458	2,550
Total	438	255	693	2,560	9,704	12,264	2,998	9,959	12,957
Scallops:									
Massachusetts	2	78	80	382	801	1,183	384	879	1,263
New York		4	4	1,031	311	1,342	1,031	315	1,346
Other [2]		3	3	711	642	1,353	711	645	1,356
Total	2	85	87	2,124	1,754	3,878	2,126	1,839	3,965
Shrimp:									
Alabama	8	12	20	274	2,896	3,170	282	2,908	3,190
Alaska [4]					2,517	2,517		2,517	2,517
California		139	139		1,683	1,683		1,822	1,822
Florida	1,076	665	1,741	3,345	6,151	9,496	4,421	6,816	11,237
Georgia	390	180	570	2,063	1,925	3,988	2,453	2,105	4,558
Louisiana	196	265	461	8,195	14,093	22,288	8,391	14,358	22,749
Mississippi	20	70	90	1,956	4,958	6,914	1,976	5,028	7,004
North Carolina				338	1,840	2,178	338	1,840	2,178
Texas	108	93	201	2,165	3,880	6,045	2,273	3,973	6,246
Other [2]				498	383	881	498	383	881
Total	1,798	1,424	3,222	18,834	40,326	59,160	20,632	41,750	62,382
Sponges (Dry weight):									
Florida	19	26	45	294	99	393	313	125	438
Whale oil:									
California				5,250		5,250	5,250		5,250
Washington				6,405		6,405	6,405		6,405
Total				11,655		11,655	11,655		11,655
Total other products	2,272	3,334	5,606	35,933	53,439	89,372	38,205	56,773	94,978
Grand total	101,365	131,610	232,975	890,397	1,448,027	2,338,424	991,762	1,579,637	2,571,399

[2] States and Territories having a production of less than 1,00,000 pounds have been combined.
[3] Less than 500 pounds.
[4] Alaskan statistics are for the year 1930.
[5] Part of the Porto Rican production of mackerel, mullet, and red snapper is included in "Other."

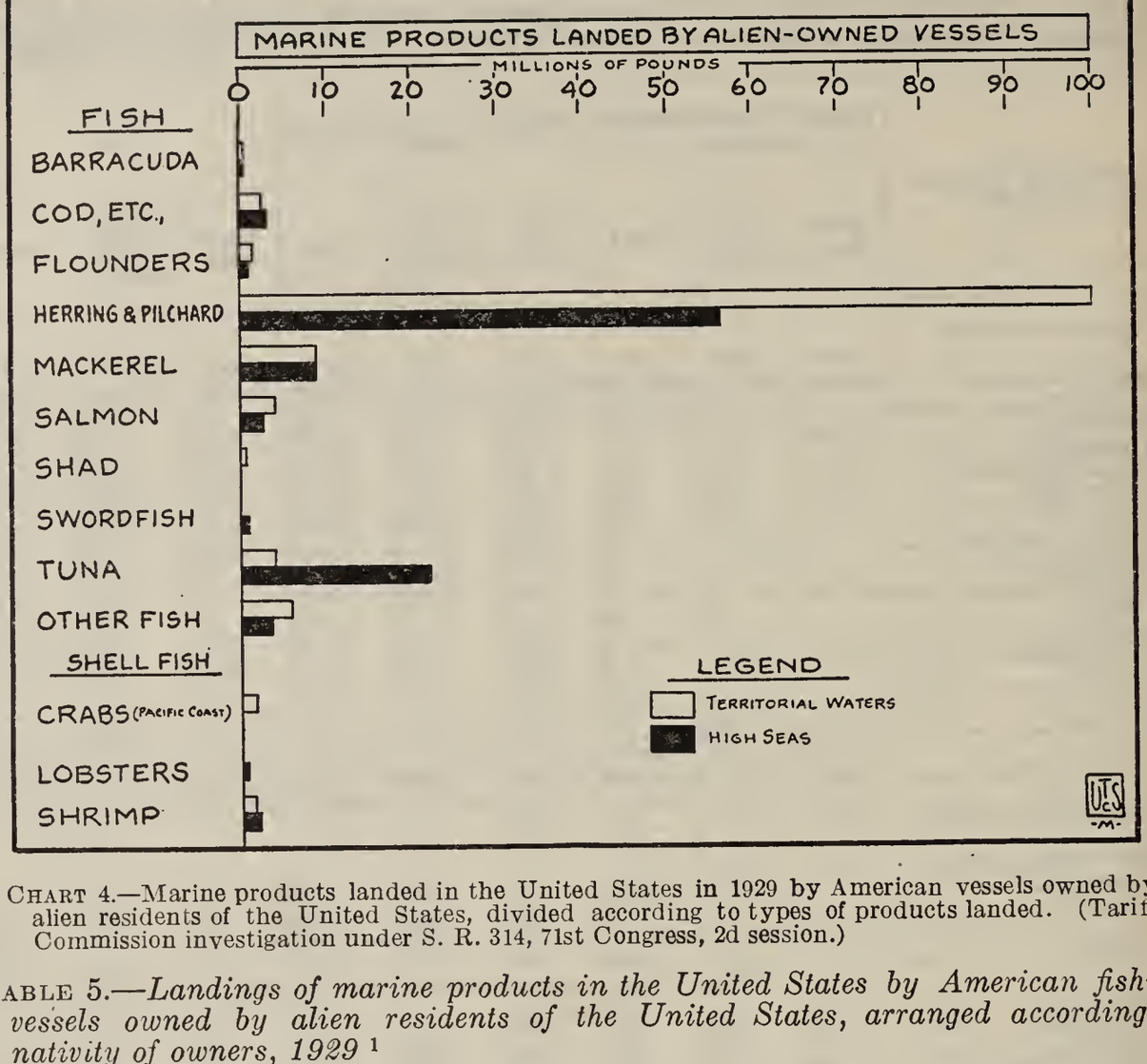

CHART 4.—Marine products landed in the United States in 1929 by American vessels owned by alien residents of the United States, divided according to types of products landed. (Tariff Commission investigation under S. R. 314, 71st Congress, 2d session.)

TABLE 5.—*Landings of marine products in the United States by American fishing vessels owned by alien residents of the United States, arranged according to nativity of owners, 1929* [1]

Country of birth of vessel owner	Vessels	Catch of marine products brought into the United States		
		From high seas	From territorial waters	Total
	Number	*Pounds*	*Pounds*	*Pounds*
Austria	12	59,900	144,659	204,559
Canada	51	54,900	1,373,850	1,428,750
Denmark	16	114,830	188,933	303,763
England	29	151,468	445,783	597,251
Estonia	4	12,321	22,503	34,824
Finland	151	1,618,428	424,350	2,042,778
France	7	4,147,272	7,956,574	12,103,846
Germany	30	75,552	154,567	230,119
Greece	60	73,188	723,389	796,577
Holland	5	31,250	48,760	80,010
Hungary	1	----------	65,000	65,000
Ireland	9	8,300	25,910	34,210
Italy	455	16,270,877	43,810,724	60,081,601
Japan	496	55,418,275	51,834,348	107,252,623
Latvia	8	40,373	71,800	112,173
Norway	159	955,007	2,398,921	3,353,928
Philippines	15	8,150	163,020	171,170
Poland	5	113,265	26,600	139,865
Portugal	254	5,555,674	3,660,075	9,215,749
Russia	15	757,659	191,306	948,965
Spain	25	238,525	305,600	544,125
Sweden	49	382,003	495,594	877,597
Switzerland	4	----------	37,400	37,400
Turkey	4	----------	93,174	93,174
Yugoslavia	20	104,323	4,175,962	4,280,285
Other [2]	21	11,170	175,237	186,407
Unclassified [3]	113	15,162,948	12,595,278	27,758,226
Total	2,018	101,365,658	131,609,317	232,974,975

[1] From reports submitted for certain classes of vessels. *See* "Scope of the Investigation," p. 1. Alaskan statistics are for the year 1930.

[2] Includes the following countries: Argentina, Belgium, Brazil, China, Cuba, Czechoslovakia, Lithuania, Mexico, and Scotland.

[3] Data with respect to nativity not available.

TABLE 6.—*Landings of marine products in the United States by American fishing vessels owned by alien residents of the United States, arranged according to nativity of owner and State or Territory in which the vessel was recorded, 1929* [1]

Country of birth of vessel owner and State or Territory in which the vessel was recorded	Vessels	Catch of marine products brought into the United States		
		From high seas	From territorial waters	Total
Austria:	*Number*	*Pounds*	*Pounds*	*Pounds*
California	7	400	101,709	102,109
Maine	1		5,000	5,000
New York	1	15,000	10,000	25,000
Louisiana	3	44,500	27,950	72,450
Total	12	59,900	144,659	204,559
Canada:				
Alaska	7	2,400	67,047	69,447
Maine	21	49,000	1,162,457	1,211,457
Massachusetts	19	3,500	132,896	136,396
Other	4		11,450	11,450
Total	51	54,900	1,373,850	1,428,750
Denmark:				
California	9	25,030	80,933	105,963
New Jersey	4	89,800	60,400	150,200
Other	3		47,600	47,600
Total	16	114,830	188,933	303,763
England:				
Alaska	3		88,167	88,167
California	3	3,013	142,138	145,151
Florida	17	148,455	158,328	306,783
Other	6		57,150	57,150
Total	29	151,468	445,783	597,251
Estonia:				
Alabama	1	8,000	18,117	26,117
California	2	299	4,386	4,685
Oregon	1	4,022		4,022
Total	4	12,321	22,503	34,824
Finland:				
Alaska	12		205,244	205,244
California	26	319,460	66,783	386,243
Massachusetts	9	56,095	43,750	99,845
Oregon	74	965,964	38,670	1,004,634
Washington	22	208,709	2,800	211,509
Other	8	68,200	67,103	135,303
Total	151	1,618,428	424,350	2,042,778
France:				
California	5	4,144,632	7,948,374	12,093,006
Other	2	2,640	8,200	10,840
Total	7	4,147,272	7,956,574	12,103,846
Germany:				
Alaska	3		24,614	24,614
California	15	59,932	91,104	151,036
Florida	3		8,030	8,030
Louisiana	4	8,500	23,064	31,564
Other	5	7,120	7,755	14,875
Total	30	75,552	154,567	230,119
Greece:				
Alaska	12		450,628	450,628
California	22	47,602	175,973	223,575
Florida	22	24,309	36,788	61,097
Other	4	1,277	60,000	61,277
Total	60	73,188	723,389	796,577

[1] From reports submitted for certain classes of vessels. *See* "Scope of the Investigation," p. 1. Alaskan statistics are for the year 1930.

TABLE 6.—*Landings of marine products in the United States by American fishing vessels owned by alien residents of the United States, arranged according to nativity of owner and State or Territory in which the vessel was recorded, 1929*—Continued

Country of birth of vessel owner and State or Territory in which the vessel was recorded	Vessels	Catch of marine products brought into the United States		
		From high seas	From territorial waters	Total
	Number	*Pounds*	*Pounds*	*Pounds*
Holland:				
Alaska	1	----------	7,257	7,257
California	1	3,000	7,700	10,700
Florida	2	18,000	1,303	19,303
New York	1	10,250	32,500	42,750
Total	5	31,250	48,760	80,010
Hungary: California	1	----------	65,000	65,000
Ireland:				
Alaska	2	----------	5,270	5,270
Massachusetts	5	8,300	18,440	26,740
Other	2	----------	2,200	2,200
Total	9	8,300	25,910	34,210
Italy:				
California	378	15,350,477	42,432,467	57,782,944
Connecticut	14	67,700	37,570	105,270
Massachusetts	32	600,000	1,114,678	1,714,678
New Jersey	9	108,200	10,000	118,200
New York	6	40,000	11,940	51,940
Texas	5	67,000	88,000	155,000
Other	11	37,500	116,069	153,569
Total	455	16,270,877	43,810,724	60,081,601
Japan:				
California	145	50,037,982	46,382,559	96,420,541
Hawaii	347	5,360,793	5,405,789	10,766,582
Other	4	19,500	46,000	65,500
Total	496	55,418,275	51,834,348	107,252,623
Latvia:				
California	3	40,373	800	41,173
Florida	5	----------	71,000	71,000
Total	8	40,373	71,800	112,173
Norway:				
Alaska	91	17,640	1,613,783	1,631,423
California	6	9,800	83,612	93,412
New Jersey	28	624,120	283,150	907,270
Oregon	12	158,776	29,100	187,876
Washington	10	57,500	155,533	213,033
Other	12	87,171	233,743	320,914
Total	159	955,007	2,398,921	3,353,928
Philippines:				
Alaska	8	400	82,020	82,420
Hawaii	3	7,250	5,500	12,750
Louisiana	4	500	75,500	76,000
Total	15	8,150	163,020	171,170
Poland:				
California	2	9,500	500	10,000
Florida	1	90,765	23,350	114,115
New Jersey	1	13,000	----------	13,000
Rhode Island	1	----------	2,750	2,750
Total	5	113,265	26,600	139,865
Portugal:				
California	24	1,131,682	127,514	1,259,196
Connecticut	17	299,545	358,696	658,241
Florida	32	685,960	509,490	1,195,450
Georgia	21	412,700	181,710	594,410
Maine	5	237,000	376,509	613,509
Massachusetts	153	2,786,312	2,104,646	4,890,958
Other	2	2,475	1,510	3,985
Total	254	5,555,674	3,660,075	9,215,749
Russia:				
Alaska	1	----------	18,650	18,650
California	14	757,659	172,656	930,315
Total	15	757,659	191,306	948,965

TABLE 6.—*Landings of marine products in the United States by American fishing vessels owned by alien residents of the United States, arranged according to nativity of owner and State or Territory in which the vessel was recorded, 1929*—Continued

Country of birth of vessel owner and State or Territory in which the vessel was recorded	Vessels	Catch of marine products brought into the United States		
		From high seas	From territorial waters	Total
Spain:	*Number*	*Pounds*	*Pounds*	*Pounds*
California	11	88,825	64,725	153,550
Florida	6	46,200	48,550	94,750
Louisiana	5	103,500	71,125	174,625
Other	3		121,200	121,200
Total	25	238,525	305,600	544,125
Sweden:				
Alaska	11	2,956	257,638	260,594
California	8	18,800	54,360	73,160
Florida	5	127,000	13,871	140,871
New Jersey	7	98,060	8,600	106,660
New York	4	7,200	42,225	49,425
Oregon	3	64,493		64,493
Washington	4	24,494	5,600	30,094
Other	7	39,000	113,300	152,300
Total	49	382,003	495,594	877,597
Switzerland:				
Alaska	2		20,700	20,700
California	1		6,200	6,200
Florida	1		10,500	10,500
Total	4		37,400	37,400
Turkey:				
Alaska	3		92,724	92,724
California	1		450	450
Total	4		93,174	93,174
Yugoslavia:				
California	11	38,448	4,098,037	4,136,485
Louisiana	3	17,000	16,000	33,000
Other	6	48,875	61,925	110,800
Total	20	104,323	4,175,962	4,280,285
Other: [2]				
Alaska	2		22,426	22,426
California	4	4,100	44,236	48,336
Connecticut	1		9,600	9,600
Florida	1		21,516	21,516
Hawaii	2	3,000	9,526	12,526
Maine	2		21,233	21,233
Massachusetts	3		14,200	14,200
New Jersey	1		3,000	3,000
New York	2	70	4,000	4,070
Rhode Island	1		1,500	1,500
Texas	1		24,000	24,000
Washington	1	4,000		4,000
Total	21	11,170	175,237	186,407
Unclassified: [3]				
Alaska	10		359,567	359,567
California	69	14,524,890	11,998,673	26,523,563
Delaware	2	60,000	919	60,919
Florida	1	15,000	5,000	20,000
Louisiana	1	2,500	20,000	22,500
Massachusetts	8	278,905	133,802	412,707
Maine	1		6,400	6,400
New Jersey	3	118,000	3,344	121,344
New York	2	4,000	6,447	10,447
Oregon	7	93,246	2,000	95,246
Porto Rico	2		16,654	16,654
Rhode Island	1		35	35
Virginia	1		42,400	42,400
Washington	5	66,407	37	66,444
Total	113	15,162,948	12,595,278	27,758,226
Grand total	2,018	101,365,658	131,609,317	232,974,975

[1] Includes the following countries: Argentina, Belgium, Brazil, China, Cuba, Czechoslovakia, Lithuania, Mexico, and Scotland.
[2] Data with respect to nativity not available.

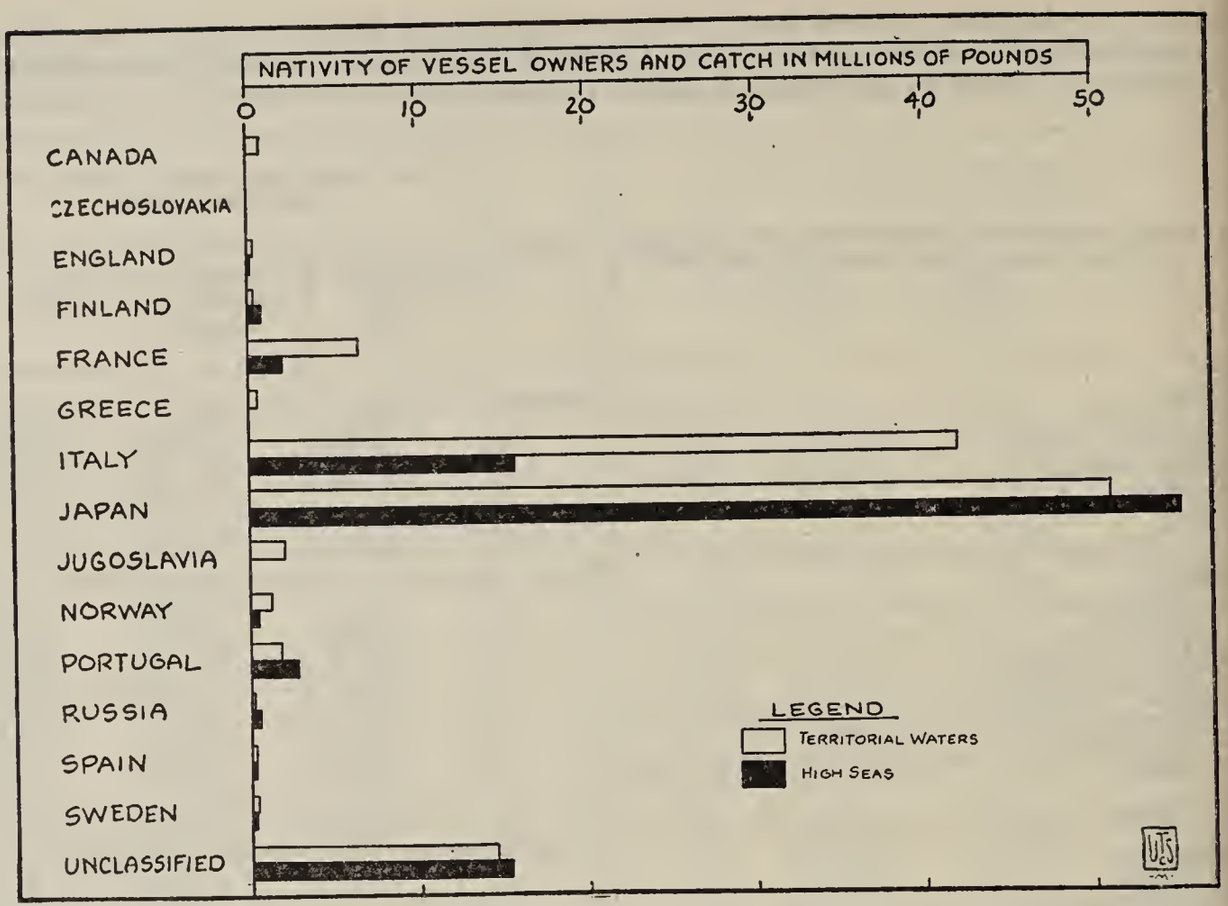

CHART 5.—Marine products landed in the United States in 1929 by American vessels owned by alien residents of the United States, divided according to nativity of vessel owners. (Tariff Commission investigation under S. R. 314, 71st Congress, 2d session.)

TABLE 7.—*Number and catch of American fishing vessels operated under charter, lease, or rental, 1929* [1]

State or Territory in which vessel was recorded	Vessels	Catch of marine products landed in the United States		
		From high seas	From territorial waters	Total
	Number	*Pounds*	*Pounds*	*Pounds*
Leased by citizens to citizens:				
Alabama	4	----------	43,250	43,250
Alaska [2]	40	1,000	32,936,407	32,937,407
California	22	1,197,074	7,908,729	9,105,803
Connecticut	1	18,700	----------	18,700
Florida	2	23,000	4,500	27,500
Maine	5	7,000	7,900	14,900
Maryland	3	----------	13,100	13,100
Massachusetts	11	17,175	36,876	54,051
New Jersey	1	----------	11,250	11,250
New York	6	284,400	18,500	302,900
Oregon	241	125,438	2,796,391	2,921,829
Porto Rico	1	----------	10,508	10,508
Rhode Island	13	37,000	106,413	143,413
Texas	2	21,400	58,660	80,060
Washington	83	444,475	929,652	1,374,127
Total	435	2,176,662	44,882,136	47,058,798
Leased by citizens to aliens:				
Alaska [2]	4	----------	25,200	25,200
California	18	234,332	1,913,560	2,147,892
Oregon	6	98,514	----------	98,514
Washington	4	32,945	----------	32,945
Total	32	365,791	1,938,760	2,304,551
Leased by aliens to aliens:				
Alaska [2]	3	----------	13,770	13,770
California	7	124,937	139,047	263,984
Rhode Island	1	17,500	----------	17,500
Total	11	142,437	152,817	295,254
Leased by aliens to citizens:				
Alaska [2]	1	----------	22,360	22,360
California	3	34,200	800	35,000
Total	4	34,200	23,160	57,360
Grand total	482	2,719,090	46,996,873	49,715,963

[1] From reports submitted for certain classes of vessels. *See* "Scope of the Investigation," p. 1.
[2] Alaskan statistics are for the year 1930.

TABLE 8.—*Restrictions and limitations upon alien fishermen with respect to the ownership and/or operation of vessels engaged in the commercial fisheries*

State or Territory	May an alien—			May an alien be a member of the crew on a fishing vessel—			
	Own and operate a fishing vessel	Own a fishing vessel operated by a citizen	Operate a fishing vessel owned by a citizen	Owned and operated by a citizen	Owned and operated by an alien	Owned by an alien and operated by a citizen	Owned by a citizen and operated by an alien
1	2	3	4	5	6	7	8
United States:							
Less than 5 net tons	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
5 net tons and over	No	No	No	Yes [1]	No [2]	No [3]	No.[4]
State or Territory:							
Maine	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
New Hampshire [5]	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Massachusetts [6]	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Rhode Island [7]	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Connecticut [8]	No	Yes	No	No	No	No	No.
New York	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
New Jersey [9]	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Delaware [10]	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Pennsylvania	No	No	No	No	No	No	No.
Maryland [11]	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Virginia [12]	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
North Carolina	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
South Carolina	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Georgia [13]	No	Yes	No	No	No [2]	No	No.[4]
Florida [14]	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Alabama	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Mississippi	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Louisiana	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Texas [15]	No	Yes	No	Yes	No [2]	Yes	No.[4]
California	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Oregon	No	Yes	No	No [16]	No [16]	No [16]	No.[16]
Washington	No	Yes	No	No [17]	No [17]	No [17]	No.[17]
Alaska [18]	No	Yes	No	No	No [2]	No	No.[4]
Hawaiian Islands [19]	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Porto Rico	Yes	Yes	Yes	Yes	Yes	Yes	Yes.

[1] The master and other licensed officers of the vessel must be citizens of the United States.
[2] Predicated on column 2.
[3] Predicated on column 3.
[4] Predicated on column 4.
[5] Aliens not permitted to take smelts or lobsters.
[6] Aliens not permitted to take lobsters unless engaged in business for 5 years prior to Dec. 1, 1920. Aliens not permitted to take crabs unless residents and have filed first papers prior to June 1, 1930. Aliens not permitted to take shellfish unless residents for 5 years next preceding date of application for permit, or have taken shellfish as an article of commerce for said period.
[7] Aliens not permitted to use auto or beam trawls. Aliens not permitted to take lobsters.
[8] Aliens with 10 years' continuous residence in the State prior to July 1, 1923, who were engaged in commercial fishing during that period, and who have not been convicted of any violation of the fish and game laws, are treated as citizens.
[9] Aliens not permitted to use nets or seines in "any of the bays, flats, rivers, or waters within the jurisdiction of this State" (Delaware River excepted). Law not construed to include aliens who operate boats on the Atlantic coast. Aliens excluded from fisheries of Delaware Bay except with rod, hook and line, or hand line.
[10] Aliens not permitted to take lobsters. Aliens excluded from fisheries of Delaware Bay except with rod, hook and line, or hand line. Aliens must pay $5 per annum for license to fish in waters other than Delaware River and Bay.
[11] Fishing with nets limited to citizens or landowners. Taking of fish, oysters, or crabs from the Potomac River limited to citizens of Maryland and Virginia. However, aliens may fish in Potomac River with hook and line.
[12] Taking of fish, oysters, or crabs from the Potomac River limited to citizens of Maryland and Virginia. However, aliens may take fish from Potomac River with hook and line.
[13] Aliens not permitted to take shrimp or prawn except under certain regulations and upon payment of license of $10 each. Aliens with continuous residence of 3 years prior to Jan. 1, 1925, and who have filed first papers, are treated as citizens. No license to operate a fishing vessel shall be issued to any but citizens, except as noted above.
[14] Alien-owned vessels engaged in taking shrimp or prawn must pay annual license of $2,000. Alien fishermen must pay $5 for license, and $10 for license for vessel. The above does not apply to the sponge fisheries.
[15] Aliens who have filed first papers are treated as citizens.
[16] Aliens may, under certain conditions, obtain a boat-puller's license.
[17] Aliens may be employed as cooks.
[18] Aliens may be employed as laborers, either at stated wages, or by piecework, or both, by persons lawfully entitled to fish in Alaska.
[19] Alien fishing permits cost $5.

UNITED STATES TARIFF COMMISSION

UNITED STATES-PHILIPPINE TARIFF AND TRADE RELATIONS

REPORT No. 18

Second Series

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CONTENTS

	Page	References to table
Introduction	1	
PART I. VARIOUS PHASES OF UNITED STATES-PHILIPPINE TARIFF RELATIONS		
Tariff status on both sides, 1898–1930:		
United States-Philippine tariff relations, 1898–1902	1	
Second phase of United States-Philippine tariff relations	2	36
Beginning of United States-Philippine duty-free trade relations	2	
Present status of United States-Philippine tariff relations	3	35
Chronological development of United States commercial policy in the Philippines:		
First reduction in United States duties on Philippine products	4	
Free entry of Philippine products under the United States tariff act of 1909	5	
United States tariff act of October 3, 1913	6	
Emergency tariff act of 1921 and tariff acts of 1922 and 1930	6	1
Philippine import tariffs, 1898–1909	8	
Alleged preferential Philippine treatment of American goods, prior to duty-free entry in 1909	9	
Correlation of duty-free admission of American products into the Philippines with the Philippine import tariff on non-American goods	9	
Philippine import tariff of August 5, 1909, on non-American goods	10	
Philippine export duties:		
Philippine export duties under the earlier American administrations	11	
Later legislation respecting Philippine export duties	12	2
Exports of manila fiber, under exemption from export duties when shipped to United States	12	25, 3
PART II. COMPARATIVE TRADE AND TARIFF ADVANTAGES		
Philippine-United States commodity trade balances, tariff preferences, and tariff levels:		
Philippine commodity trade balances with continental United States and with other countries and regions	15	4
Comparative amounts and proportions of Philippine-United States trade reciprocally favored through duty-free trade relations	17	5
Comparative amounts of duties waived under mutual free trade	18	6
Comparative ad valorem equivalents of duties reciprocally waived by the United States and the Philippines through duty-free trade relations	21	7
Levels of the Philippine import tariffs preceding Philippine-United States duty-free trade relations	21	
Levels of the Philippine and United States import tariffs, respectively, following inauguration of reciprocal duty-free trade	22	8

	Page	References to table
PART III. DEVELOPMENT OF PHILIPPINE-UNITED STATES TRADE		
Philippine shipments to the United States:		
Increase of Philippine shipments to the United States during the preferential tariff period (fiscal years 1903–1909)	25	9, 10 3, 25
Comparative increase in Philippine shipments to the United States, distinguishing (*a*) products admitted free of duty because of their Philippine origin (preferential free entry), and (*b*) Philippine products on the general free lists of the United States tariffs	27	11, 12
Increases in United States imports from the Philippines by leading commodities, 1909–1930	28	13, 13(A)–13(S)
Philippine sugar movement to the United States, 1910 to 1929–30	29	14, 15, 16, 13(A), 17, 18, 19, 20, 21
Shipments of Philippine copra and coconut oil to the United States, 1909–1929	33	22, 13(B), 13(D), 23
Shipments of Philippine tobacco products to the United States, 1909–1929	36	24, 13(E), 13(N)
Shipments of manila fiber to the United States, 1890–1894, 1899–1929	37	25
Philippine imports from the United States:		
Development of Philippine import trade from the United States, 1899–1909	37	----------
Philippine imports from the United States by leading commodities, 1910–1914, 1924–1928, and 1929	39	26
Increases in Philippine imports from the United States by leading commodity groups, 1923–1929	41	----------
Philippine imports of cotton cloth from the United States	42	27
Philippine imports of wheat flour and rice—Increased production of rice in the Philippines	42	----------
Relative position of the United States and other countries in Philippine import and export trade, 1928 and 1929	44	----------
United States exports to the Philippines by commodity groups, 1928 and 1929	45	28
United States exports of agricultural products, manufactures of agricultural products, and other products to the Philippines, 1910–1914 to 1924–1928, and 1929	46	29, 11, 12
Relative importance of increases in United States export trade to the Philippines and to selected countries, 1910–1914 to 1925–1929, and 1930	48	30
Philippine reexportations to Asiatic points, of imports from the United States, 1910–1929	49	31
Dutiable trade between the Philippines and the United States, 1924–1929	50	----------
Share of United States Pacific, Gulf, and Atlantic ports in the Philippine trade	51	32
Participation of American and foreign vessels in Philippines overseas trade	52	33

	Page	References to table
APPENDICES		
A. Philippine insular government revenues from taxation and United States revenues transferred to the insular treasury:		
Philippine insular government revenues from taxation, including customs import duties, 1903–1929	54	34
United States internal revenue, customs, and tonnage duties collected on imports from the Philippines and transferred to treasury of the Philippine Islands	55	35, 36
B. Analysis of the effects of tariff preference for American products on the import trade of the Philippines:		
Relative effect of exemption from specific duties as compared with exemption from ad valorem and minimum ad valorem duties	56	37
Effect of differences in levels of duties on non-American goods upon imports of such goods duty free from the United States	57	38
Movement of 223 commodities and commodity groups in Philippine import trade from the United States and possessions according to tariff preferences, 1911–1914 to 1922–1926	60	39
C. American Investments in the Philippines	61	

D. Statistical tables:

No.		Page
1.	Principal changes in United States tariff rates on important products which are duty free from the Philippines	65
2.	Philippine export duties per hundred pounds gross weight, from date of American occupation to October 3, 1913	66
3.	Average price per metric ton of manila fiber shipments, at Philippine shipping points, calendar years 1899–1913	67
4.	Philippine trade (general imports and exports, excluding gold and silver ore, bullion, and coin) and commodity trade balances, January 1, 1899–December 31, 1930	68
5.	Values and proportions of Philippine and United States exports reciprocally admitted duty free because of their respective origins from the beginning of duty-free trade relations to the end of 1929	71
6.	Estimate of scheduled duties nominally waived by the United States on Philippine exports; and by the Philippines on United States exports, from the beginning of reciprocal duty-free trade to December 31, 1929	72
7.	Ad valorem equivalents of estimated duties nominally waived on Philippine and American products, in the United States and the Philippines, respectively	74
8.	Ad valorem equivalent of import duties in the Philippines and in the United States, 1911–1929, computed on value of dutiable imports	75
9.	Annual average values of leading Philippine exports, 1890–1894, 1900–1902, and 1903–1909	75
10.	Leading Philippine domestic exports to all countries and to the United States, August 20, 1898–June 30, 1909	76
11.	Leading Philippine exports to the United States and possessions, exempted from import duty after August 5, 1909 (from July 1, 1899, to December 31, 1929)	77
12.	Leading Philippine exports to the United States and possessions, duty free in the United States regardless of country of origin (from July 1, 1899, to December 31, 1929)	79

D. Statistical tables—Continued.

No.		Page
13.	(1) (2) Principal United States imports from the Philippine Islands, July 1, 1909–December 31, 1930, by commodities.	
	(A) Cane sugar	82
	(B) Coconut oil	83
	(C) Manila fiber or abacá	84
	(D) Copra	85
	(E) Cigars, cheroots, cigarettes, etc	86
	(F) Cotton embroideries, laces, etc	87
	(G) Coconut meat, desiccated, shredded, cut, etc	88
	(H) Wood, all classes in logs, planks, deals, veneers, etc	89
	(I) Hats, bonnets, etc., of straw, etc	90
	(J) Cordage, yarns, threads, twines, etc	91
	(K) Ready-made clothing, etc., of cotton	92
	(L) Coconut-oil cake	93
	(M) Buttons of pearl or shell	94
	(N) Tobacco, filler, leaf, and all other, except cigars and cigarettes	95
	(O) Shells, engraved, cut, etc. (including mother-of-pearl)	96
	(P) Maguey or cantala	97
	(Q) Furniture of wood, rattan, reed, etc., except metal	98
	(R) Binding twine	99
	(S) Mangrove tanning extract	99
14.	Exportation of sugar from the Philippines to the United States and to all countries, 1885 to 1894 and 1899 to 1929	100
15.	Philippine area under sugar cultivation, yield per acre in raw sugar, and fertilizer and sugar machinery imported into the Philippines from all sources, 1910–1929	100
16.	United States imports of duty-free cane sugar from the Philippines, July 1, 1909–December 31, 1930	101
17.	Total consumption of sugar in continental United States together with sources of supply and quantity and percentage from each source, 1913 to 1930	102
18.	Per capita consumption of sugar in continental United States, together with sources of supply and quantity from each source, 1913–1930	102
19.	Cane sugar—imports for consumption into the United States from the Philippines by customs districts, 1923 to 1928 and 1929	103
20.	Cane sugar—imports for consumption into the United States from the Philippines by months, 1923 to 1928 and 1929	104
21.	Approximate average tariff advantage of Philippine over Cuban sugar under United States tariff acts	104
22.	Area planted to coconuts, yield per acre, and trees bearing, in the Philippines, 1910–1928	105
23.	Quantities of Philippine exports of coconut oil and copra, 1899–1929	105
24.	Philippine cigar exports, 1899–1929	106
25.	Philippine exports and overseas shipments of manila fiber (abacá), 1890–1894, 1899–1901, 1902–1913, 1914–1929	107
26.	Principal Philippine imports from all countries and from continental United States by commodity groups, 1911–1914, 1924–1928, and 1929	109
27.	Imports of cotton cloth into the Philippines	111
28.	United States domestic exports to the Philippines and to all destinations (commodities over $100,000 in value) 1928 and 1929	112
29.	Merchandise exported to the Philippines from the United States, 1910–1914, 1924–1928, and 1929	116
30.	United States exports to Philippines compared with total exports	117
31.	Reexportations of merchandise imported from continental United States into the Philippines to all Asiatic points, 1910–1929	117
32.	Classification of United States imports from and exports to the Philippines by regional groups of ports	118

D. Statistical tables—Continued.

No.		Page
33.	Entrance of vessels from all countries into the Philippines, and value of trade (exports plus imports) with all countries and with the United States, classified by nationality of vessels	119
34.	Philippine insular government revenue derived from taxation, 1903–1929	120
35.	United States internal revenue collected on Philippine products and transferred to credit of insular treasury, Philippine Islands, 1910–1929	121
36.	United States customs collections and transfers to the Philippine insular treasury, under the act of March 8, 1902 (1902–1930)	121
37.	Classification of Philippine imports according to presence or absence of tariff preference	122
38.	Relation of the varying degrees of tariff preference to the United States in Philippine importations, and of changes therein, to the share of the United States in the trade	123
39.	Annual average values of Philippine imports from all sources and from United States and possessions, July 1, 1910–December 31, 1926, by commodities and approximate levels of tariff preference	124

UNITED STATES-PHILIPPINE TARIFF AND TRADE RELATIONS

INTRODUCTION

This report briefly summarizes tariff and trade relations between the United States and the Philippines from the time of American occupation of the islands in 1898 until recent years. Tables have been used frequently rather than discussion because of the relatively long periods included in presenting various aspects of the subject. Part I deals principally with the tariff relationship; Part II, with comparative trade and tariff advantages; and Part III, more generally with trade movements in both directions and related data. The several appendices give supplementary information.

Part I

VARIOUS PHASES OF UNITED STATES-PHILIPPINE TARIFF RELATIONS

THE TARIFF STATUS ON BOTH SIDES, 1898–1930

United States-Philippine Tariff Relations, 1898–1902.

During the initial period of American occupation of the Philippines from August 13, 1898,[1] to March 8, 1902, import duties [2] in the United States on Philippine products, import duties in the Philippines on goods from the United States,[3] and export duties on Philippine products shipped to the United States were levied as though the relationship between the islands and the United States were that of one foreign country to another.[4] During this first phase of American tariff policy in the Philippines no tariff reductions or preferences were accorded to products of the islands entering the United States, and American goods entering the Philippines received the same tariff treatment as similar goods from all other countries.[5]

---

[1] The city of Manila, which was the most important political and administrative center, was occupied by American land forces on this date.

[2] For convenient reference, the terms "importation" and "exportation" are often used in this report in discussions of the trade movement between the Philippines and the United States. These terms are not strictly accurate, as the Philippines are not "foreign" territory.

[3] Supplies and materials for the use of the U. S. Army and Navy and for the insular government were admitted duty free into the Philippines from any source from the beginning of the American occupation to Aug. 5, 1909. (Pars. 23 and 363, tariff and regulations, accompanying the Executive order issued in Washington, D. C., July 12, 1898, and corresponding provisions in succeeding United States military decrees; par. 385, Philippine tariff of Sept. 17, 1901; and par. 385, congressional Philippine tariff acts of Mar. 8, 1902, and Mar. 3, 1905.) Since Aug. 6, 1909, such supplies, unless imported from the United States or its possessions, have been subject to the general Philippine tariff.

[4] The Manila customhouse actually was opened Aug. 20, 1898, under United States military occupation of the Philippines, but until Nov. 10, 1898, Spanish goods ordered or purchased before the Spanish-American War were accorded such preferences as they had enjoyed under the Spanish colonial tariff system in the Philippines.

[5] The collection of Philippine import duties on goods from the United States and of export duties on Philippine products shipped to the United States prior to Mar. 8, 1902, was legalized under the act of Congress of June 30, 1906.

Second Phase of United States-Philippine Tariff Relations.

In the act of March 8, 1902, Congress passed its first tariff legislation respecting the Philippines. Philippine products not already on the general free list of the United States tariff act of 1897 were granted a preferential reduction of 25 per cent from the rates of that tariff. Products of the United States entering the Philippines were made subject to the general Philippine import duties.[6] The same act provided that no export duties were to be levied in the Philippines on products of the islands going directly to the United States for use and consumption therein, if such products were on the general free list of the United States tariff; and provided further that any export duties collected in the islands on shipments to the United States which were dutiable therein must be deducted from the American import duties, and that all import duties collected in the United States on Philippine products must be paid into the treasury of the Philippine Islands.[7]

The act of March 8, 1902, also postponed the application of the United States coastwise shipping laws to the Philippines, and these laws have in fact never been extended to the Philippines.[8] This means that whereas only American flag vessels may trade between ports of continental United States, or between them and other outlying possessions, foreign vessels may trade between the United States and the Philippines.

This second phase of American tariff policy regarding the Philippines (from March 8, 1902, to August 5, 1909) was therefore characterized by tariff preferences in favor of Philippine products entering the United States, and by the continuation and conclusion of the policy by virtue of which American and non-American goods alike received the same tariff treatment in the Philippine Islands.

Beginning of United States-Philippine Duty-Free Trade Relations.

The first arrangement establishing Philippine-United States duty-free trade,[9] beginning August 5, 1909, limited the annual quantities of Philippine sugar and tobacco products admissible duty free into the United States; limited the permissible content of materials originating in foreign countries and embodied in Philippine products admissible duty free into the United States to 20 per cent of their value; conditioned duty-free trade in both directions upon nonallowance of drawback upon the articles affected; and abolished all Philippine export duties upon shipments to the United States. With the exceptions just noted in regard to rice [10] and nonallowance of drawback, the act of August 5, 1909, likewise granted unlimited duty-free entry of American products into the Philippines. Duty-free entry in both directions was conditioned upon direct shipment of the products in question.

All the United States tariff acts, beginning with that of August 5, 1909, provide "That in consideration of the exemptions aforesaid, all

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[6] In Art. IV of the treaty of peace with Spain the United States agreed to "admit Spanish ships and merchandise to the ports of the Philippine Islands on the same terms as ships and merchandise of the United States" for a term of 10 years from Apr. 11, 1899.

[7] Ever since the inauguration of duty-free trade in 1909, all import duties collected in the United States on such Philippine goods as were not entitled to duty-free entry have been currently paid over to the Philippine treasury for the benefit of the insular government, under authority of the act of Mar. 8, 1902. (See Table 36.)

[8] Authority for extension of the coastwise laws to the Philippines by Executive action under certain conditions still exists under sec. 21 of the merchant marine act of June 5, 1920.

[9] Except for rice, which continued to be dutiable on both sides. (Sec. 5 of the United States tariff act of 1909, and sec. 12 of the Philippine tariff act of 1909.)

[10] *Ibid.*

articles, the growth, product, or manufacture of the United States, upon which no drawback of customs duties has been allowed therein, shall be admitted to the Philippine Islands from the United States free of duty," [11] thus placing the duty-free admission of American goods into the islands on a compensatory basis in return for duty-free admission of Philippine products into the United States.

This third phase of American tariff policy respecting the Philippines extended from 1909 to 1913. During this period complete tariff exemption was granted the then leading Philippine export products (sugar, cigars, and tobacco) for quantities which exceeded the capacity of Philippine export production at the time. All other Philippine natural products, and predominantly Philippine manufactured products, except rice, were granted unlimited duty-free admission.[12] Concurrently, American products except rice entered the Philippines unlimited as to quantities and foreign material content, but with tariff preferences considerably smaller than those enjoyed by the leading Philippine export products by virtue of their exemption from the higher level of duties in the United States.

Present Status of United States-Philippine Tariff Relations.

The fourth phase of American tariff policy respecting the Philippines, which still subsists, was inaugurated by the tariff act of October 3, 1913. The essential change in policy from that of the tariff act of 1909 was the removal by the act of 1913 of the limitations on the quantity of Philippine sugar, cigars, and tobacco admissible duty free into the United States, although these limitations had not been nearly approached by actual shipments up to that time. The earlier exception of rice from duty-free trade movement in both directions also was omitted in the act of 1913, and all Philippine export duties on products shipped to any destination were repealed. But the limitation as to the permissible foreign material content of Philippine products granted duty-free admission into the United States was not removed in 1913, and is still in effect. Nor have any changes been made by Congress since 1909 in the rates of the Philippine import tariff.

American goods entering the Philippines enjoy no preference respecting internal-revenue taxes levied in the islands as compared with internal-revenue taxes levied there on like goods of Philippine production or like goods imported from other countries, and Philippine goods entering the United States are in the same nonpreferential situation in the American market.[13] All American goods going into the Philippines from the United States are exempt from United States internal-revenue taxes, and all Philippine goods going into the United States are exempt from Philippine internal-revenue taxes.

No step implying tariff assimilation of the Philippines was ever taken by Congress. Significant elements of United States tariff policy which were not applied by Congress in the Philippine import tariff are the antidumping, countervailing, or contingent duty, and the flexible provisions of the United States tariffs. Congress has, in fact, divested itself of responsibility for import tariff legislation for the

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[11] Tariff act of 1909, sec. 5; tariff act of 1913, Sec. IV, C; tariff act of 1922, sec. 301; tariff act of 1930, sec. 301.

[12] A limitation as to the maximum permissible foreign material content in duty-free importations from the Philippines was originally suggested by a represen ative of the Connecticut Tobacco Growers' Association to prevent other than American wrapper tobacco being used in Philippine cigars shipped to the United States duty free, but the limitation was enacted so as to apply to all Philippine products.

[13] Since passage of the United States tariff act of Aug. 5, 1909, all United States internal revenue collected on Philippine goods coming to the United States has been currently paid over to the Philippine treasury for the benefit of the insular government. (See Table 35.)

Philippines under the provisions of the Philippine organic act of August 29, 1916. This act, while reserving to Congress the sole right to legislate respecting trade relations between the United States and the Philippines, empowered the Philippine Legislature to enact tariff legislation for the islands, subject to approval or final veto by the President of the United States.

CHRONOLOGICAL DEVELOPMENT OF UNITED STATES COMMERCIAL POLICY IN THE PHILIPPINES

First Reduction in United States Duties on Philippine Products.

The first United States tariff legislation to favor Philippine products by means of special rates was the act of March 8, 1902. During the life of this legislation, until August 5, 1909, two Philippine import tariffs also were prepared under American administration in the islands and approved by Congress, neither of which, however, established preferential rates on American goods.

From the time of the American occupation of the Philippines in August, 1898, until the decision in 1901 of the United States Supreme Court in the Fourteen Diamond Rings case, the full rates of the tariff act of 1897 were applied in the United States to dutiable commercial shipments from the Philippines. In that decision the Supreme Court held that the Philippines by the treaty of peace with Spain ceased to be "foreign" territory, and that therefore the duties imposed by the tariff act of 1897 upon imports from foreign countries could not be levied upon products of the Philippines entering the United States. Although in the absence of legislation to the contrary, Philippine products were entitled under this decision to duty-free admission into the United States, the Supreme Court in this and the later "insular" cases recognized that Congress possesses full power to regulate the tariff relations with the Philippines.

After these decisions in the insular cases, Congress at once took up the matter of Philippine tariff legislation for several reasons. First, the Philippine insular tariff of September 17, 1901, was in question, this tariff having been proclaimed by the Philippine Commission under certain restricted legislative powers granted under the Spooner amendment to the Army appropriation act of March 2, 1901. Secondly, by virtue of the above decision of the Supreme Court, imports into the United States from the Philippines were, at least temporarily, admissible free of duty. And thirdly, these recent decisions of the Supreme Court rendered it likely that if the question came up for decision American coastwise shipping laws (which excluded foreign shipping from the American coastwise trade) would be held applicable to commerce between the Philippines and the United States. But on account of the small number of American merchant vessels then engaged in Philippine trade, such a decision would have driven the commerce of the islands to foreign countries whose ships could trade between the Philippines and foreign ports, but not between Philippine and American ports.

To meet this situation bills were introduced by Senator Lodge in the Senate on December 4, 1901, and by Mr. Payne in the House on December 10, 1901. Both bills provided for reenactment by Congress of the Philippine insular tariff of 1901.

The Philippine Commission asked that the rates of the tariff act of 1897 be reduced by one half or more upon Philippine products

shipped to the United States. In this connection the commission had the advice of Filipinos interested in sugar and tobacco, among them Messrs. José R. de Luzuriaga, a sugar planter, and Benito Legarda, with important tobacco and distilling interests in Manila, who had, in fact, been appointed members of the Philippine Commission on September 1, 1901.

The American sugar and tobacco interests, which expressed alarm at the prospect of competition with the Orient, protested against any reduction in the full rates of the tariff act of 1897.

The House bill provided for the enforcement of the full rates of the tariff act of 1897 on imports from the Philippines, while the Senate bill provided that such imports be given a reduction of 25 per cent from the rates of that act, and the House acquiesced in the change. The bill with the provision just described became law on March 8, 1902.[14]

Free Entry of Philippine Products under the United States Tariff Act of 1909.

Following the reduction of 25 per cent on March 8, 1902, in the United States tariff rates on Philippine products, two bills were introduced in the House in 1902 and 1905 by which it was proposed to secure a greater reduction (75 per cent from the rates of the United States tariff of 1897) on Philippine sugar, tobacco, and other Philippine products not already on the free list. The Cooper bill passed the House December 17, 1902, but failed to reach a vote in the Senate. The Payne bill, introduced on December 4, 1905, with substantially the same provisions, passed the House January 16, 1906, but likewise failed to reach a vote in the Senate.

In 1909, when Congress was in special session to consider the United States tariff bill, the question of tariff treatment of Philippine products was again under discussion. The limitations in the treaty of peace with Spain, under which Spain could require equality of tariff treatment with American goods in the Philippines, expired on April 11, 1909. The expiration of these limitations made it possible to provide exclusive tariff preferences for American goods in the islands in return for United States tariff preferences to Philippine products.

As enacted and approved, section 5 of the United States tariff act of August 5, 1909, granted the annual duty-free entrance of 300,000 long tons of sugar, 150,000,000 cigars, 300,000 pounds of wrapper tobacco, 1,000,000 pounds of filler tobacco, and unlimited duty-free entrance to all other Philippine products except rice. Any excess shipments of these products beyond the quantity limits stated were to be dutiable at full tariff rates. The limitation as to quantities of sugar and tobacco intended to protect American producers against too keen competition from Philippine products was sufficiently generous at the time, permitting larger duty-free shipments to the United States than the entire annual exportation of Philippine sugar and tobacco to all destinations. Section 5 of this act provided further that refined and unrefined sugar and tobacco manufactured or unmanufactured imported into the Philippines from foreign countries (other than the United States) should be dutiable at rates not less than those imposed by the United States on like products from foreign countries. The full American duty was retained on Philippine rice,

[14] The act of Mar. 8, 1902, also provided that United States customs collections on Philippine products entering the United States be turned over to the insular government of the Philippines.

with the purpose of preventing possible oriental competition in the American market. To protect the American market against non-Philippine competition with other imports from the islands, products or manufactures of the Philippines which contained foreign (non-American or non-Philippine) materials to the extent of more than 20 per cent of their value were made dutiable in the United States. For the same reason duty-free entry from the Philippines was limited to direct shipments and to articles upon which no drawback of customs duties had been allowed in the islands. The three last-mentioned conditions for duty-free admission have been retained in each succeeding tariff of the United States.

The United States Tariff Act of October 3, 1913.

All limitations respecting duty-free shipments of Philippine products into the United States and its possessions were removed under Section IV, C, of the tariff act of 1913, except the requirements of direct shipment, limitation of maximum permissible foreign material content of 20 per cent of their value, and limitation of the duty-free entry privilege to articles on which no drawback of customs duties had been allowed in the Philippines.

The annual quantity limits regarding duty-free shipments of sugar and tobacco products from the Philippines under the tariff act of 1909 were not approached while that act was in effect, so that the statistical record of such shipments at that time afforded no ground for keeping the restrictions in effect when the tariff of 1913 was under consideration by Congress. Shipments of sugar from the islands had made comparatively slow progress, notwithstanding its exemption from import duties. Moreover, since Congress intended to place all sugar on the free list in 1916,[15] there was no apparent reason for continuing the tonnage limitation on duty-free shipments of Philippine sugar.

The measure of tariff preference to Philippine—as against foreign—sugar entering the United States was for a time reduced under the act of October 3, 1913, as a result of the reduction in the rate of duty on foreign sugar. The quantity limitations originally fixed for duty-free Philippine sugar still had not been reached by actual shipments when Congress passed the act of April 27, 1916. That act repealed the provision making all sugars duty free after May 1, 1916, but did not restore the tonnage limitation upon duty-free Philippine sugar.

Emergency Tariff Act of 1921 and Tariff Acts of 1922 and 1930.

When the emergency tariff act of 1921 and the tariff act of 1922 were under consideration in Congress, the greatest quantity of Philippine sugar received in any one year since its duty-free admission was 196,000 long tons in the fiscal year 1912—about 65 per cent of the original 300,000 long tons limitation. In the calendar year 1921 our receipts of Philippine sugar reached only 147,000 long tons, or about 49 per cent of the limitation originally established. On the face of these figures there was no more ground for expecting, when the emergency tariff act and the tariff act of 1922 were under consideration by Congress, that the quantity limits imposed in 1909 upon duty-free admission of Philippine sugar would be exceeded than there had been in 1913 or in 1916. As a matter of fact, the 300,000

[15] The tariff act of 1913, par. 177, provided that on and after May 1, 1916, sugar would enter the United States free of duty.

tons limit imposed in 1909 was not reached by actual shipments until 1924, since when it has been exceeded in every year to and including 1930.

The preferential rates on Cuban sugar (96° centrifugal) were increased to 1.60 cents per pound under the emergency tariff act of 1921, to 1.7648 cents under the tariff act of 1922, and to 2 cents under the act of 1930, as compared with 1.0048 cents under the tariff act of 1913. Under the act of 1909 the rate was 1.348 cents per pound. Thus by increasing the duty on foreign sugar greater tariff preferences were given Philippine sugar in the United States under the emergency tariff act of 1921 and the tariff acts of 1922 and 1930 than it had theretofore enjoyed under any previous acts.

Philippine cigar shipments to the United States had declined in the calendar year 1921 to 68,000,000, a figure very far below that during the World War and immediate postwar years (1916–1920), which were the only years in which the 150,000,000 limit of duty-free shipments originally contemplated had been exceeded. Exports of Philippine leaf and other tobacco products to the United States had exceeded the limitation originally imposed in 1909 only during the war years 1917 and 1918 and the immediate postwar year 1920, but had diminished during the calendar year 1921 to a figure far below the original limitation. There was no general demand at this time for a reimposition of the limits on duty-free shipments, either respecting Philippine cigars or other tobacco products, and apparently there was no expectation in 1921 or 1922 that the limits originally set on Philippine tobacco products would be exceeded in normal years. That attitude has been justified to and including the year 1929 as regards leaf tobacco; but the average annual shipments of Philippine cigars to the United States during 1923–1928 exceeded the limitation originally contemplated by about 27 per cent, although in 1929 the quantity again was almost within the original limitation.

A tariff preference to Philippine coconut oil entering the United States was first created under the emergency tariff act of 1921 by fixing a tariff rate of 20 cents per gallon (about 2.67 cents per pound) on nondeodorized and unrefined coconut oil of foreign origin. Such foreign oil continued to be dutiable under the act of 1922, but the rate was reduced to 2 cents per pound, and was so retained in the tariff act of 1930. This was done notwithstanding the fact that shipments of Philippine coconut oil to the United States had increased without tariff preferences from practically nothing in the fiscal year 1912 to $23,866,000 in the calendar year 1920, supplying in that year about 72 per cent of the total value and 71 per cent of the total quantity of coconut oil imported into the United States from all sources, including the Philippines.

On the other hand, copra, which is the immediate raw material of coconut oil and largely produced in the Philippines, received no tariff preference in the American market, being retained on the general free list of the tariff acts of 1922 and 1930, as in previous tariff acts. Shipments of Philippine copra to the United States amounted to $423,000 in the calendar year 1920, and to $3,148,000 in the calendar year 1921, supplying about 3 per cent of the total value and 11 per cent of the total quantity in 1920, and in 1921 about 43 per cent of the total value and 44 per cent of the total quantity of United States copra imports from all sources, including the Philippines.

Although Philippine coconut oil had, without any tariff preference before 1921, made relatively greater progress in the American market than copra, its raw material, an import duty (resulting in a tariff preference for the Philippine product) was placed on coconut oil but not on copra.

Under the tariff act of 1922, the rate on shredded coconut meat (desiccated coconut) was increased from 2 cents to 3½ cents per pound, which resulted practically in the inauguration of the Philippine shredded coconut industry. Coconuts were made dutiable by the tariff act of 1922 at one-half cent each, and although this was intended primarily to favor Porto Rican coconuts which enter the United States duty free, it had the indirect effect of favoring Philippine shredded coconut manufacturers rather than continental American manufacturers of shredded coconut who might wish to utilize other than Porto Rican nuts. In the tariff act of 1930 no changes were made in either of these rates.

The rates on shell buttons, certain classes of straw hats, [16] cotton embroideries, and manila fiber cordage also were increased under the tariff act of 1922, thus increasing the tariff preference to such articles entering the United States duty free from the Philippines.

Under the tariff act of 1930 the rates on cotton embroideries and manila fiber cordage and on certain edible tropical nuts were increased, while reptile leathers and copra-oil cake and meal were made dutiable instead of free, thus again increasing or creating a tariff preference to such articles of Philippine origin entering the United States.

The more important rate changes affecting Philippine products in the different United States tariff acts since 1909 are compared in Table 1 annexed to this report.

The Philippine Import Tariffs, 1898–1909.

The first import tariff applied in the Philippines under American administration was that annexed to the Executive order issued in Washington on July 12, 1898. This was an adaptation of the Spanish colonial tariff in force before the American occupation of the islands. Subsequent slight revisions of this tariff prior to September 15, 1901, were made by the military governor of the Philippines. The tariff preference to Spanish goods, existing prior to the American occupation of the Philippines, was abolished as of November 10, 1898, under General Orders, No. 10, October 26, 1898, office of the military governor in the Philippine Islands.

The first import tariff under American civil administration of the Philippines was proclaimed September 17, 1901,[17] by the United States Philippine Commission, acting under authority of the President of the United States, to be effective November 15, 1901. This tariff was reenacted by Congress in the act of March 8, 1902.

The next Philippine tariff on imports was established by the act of Congress of March 3, 1905, to take effect 60 days after its passage, and one amendment to this act was passed by Congress. All the tariffs mentioned above and this amendment of February 26, 1906, were applied equally to American and non-American goods entering the Philippines. During the period when those tariffs were in force supplies for the United States Army and Navy and for the insular

[16] But the rates on, and hence the tariff preference to, hats of the classes most generally shipped from the Philippines to the United States were not increased under the tariff act of 1922.

[17] Act No. 230, U. S. Philippine Commission.

government were admitted into the Philippines duty free from the United States or from any other source.[18]

All the Philippine tariffs preceding the inauguration of duty-free trade between the United States and the Philippines on August 6, 1909, were designed and applied as revenue measures.

Alleged Preferential Philippine Treatment of American Goods Prior to Duty-Free Entry in 1909.

Under the provisions of the treaty of peace with Spain American products could not be admitted at lower rates of duty than Spanish products until 1909, and until August 6 of that year the goods of all countries were given identical treatment under the Philippine import tariffs.

Decreases in the Philippine import trade from Spain during the period 1898–1909 could not be attributed to a policy of favoring American goods by tariff classification, but were rather the result of abolishing preferential treatment of Spanish goods soon after the American occupation and of decreases in the Spanish population of the islands.

It was contended that the classifications of cotton cloths in the Philippine import tariff acts of 1901, 1905, and the congressional amendment of 1906, were specially devised to help the American at the expense of the British cotton-cloth trade with the islands. This appears to be true, but the net result was not of striking importance. The United Kingdom always led by far in the cotton-cloth import trade of the islands throughout the period of American occupation to the inauguration of duty-free trade with the United States. The proportions of this trade supplied by the United Kingdom were about 59 per cent from July 1, 1900–October 31, 1901;[19] 56.6 per cent from January 1, 1902–April 30, 1905, under the 1901 tariff act; 68.3 per cent during the period of less than a year when the tariff of 1905 on cotton cloths was in effect; and 57.2 per cent from July 1, 1906–June 30, 1909, under the amendment of 1906 respecting cotton cloths. The American share of Philippine imports of cotton cloth during the same periods was, respectively, about 1.2 per cent, 9.1 per cent, 7.1 per cent, and 12.9 per cent.

Correlation of Duty-Free Admission of American Products into the Philippines with the Philippine Import Tariff on non-American Goods.

Duty-free entry of American products into the Philippines was enacted by Congress under section 12 of the Philippine tariff act of August 5, 1909, concurrently with the limited duty-free entry provisions as to Philippine products entering the United States under section 5 of the tariff act of August 5, 1909.

The Philippine Assembly, then the only elective legislative body in the islands, was opposed to the duty-free entry of American products, except on a very limited scale, fearing its possible effect on the insular revenues, of which import duties at that time formed the largest item. The Assembly declared that "the duty-free exchange of products between the United States and the Philippines in the long

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[18] Pars. 23 and 363, tariff and regulations, accompanying the Executive order issued in Washington, D. C., July 12, 1898, and corresponding provisions in succeeding United States military decrees; par. 385, Philippine tariff of Sept. 17, 1901, and par. 385, congressional Philippine tariff acts of Mar. 8, 1902, and Mar. 3, 1905.

[19] Tariff and regulations accompanying the Executive order issued in Washington, D. C., July 12, 1898, and succeeding decrees of the military governor in the Philippine Islands were in force during this period.

run would be highly prejudicial to the economic interests of the Philippine people and would create a situation which might delay the obtaining of its independence." [20] This attitude was not concurred in by the Philippine Commission, which was the appointive branch and "Upper House" of the Philippine Legislature, and reflected the views of the executive branch of the Philippine Government. Both the Philippine Assembly and the Philippine Commission, however, favored the duty-free admission of Philippine products into the United States, under restrictions that were generous to the Philippines at the time.

Over the objections to the Philippine Assembly duty-free admission of American products into the islands was authorized by Congress in passing the United States tariff act of 1909 and the Philippine tariff act of the same year, with the single exception of rice, which remained dutiable at the rate of the Philippine import tariff, regardless of origin, Philippine rice being also dutiable under the United States tariff act of 1909. As in the case of Philippine products entering the United States, duty-free entry of American products into the Philippines was restricted to direct shipments and to articles on which no drawback of customs duties had been allowed in the United States. But no restriction was placed on the maximum permissible foreign material content of "all articles, the growth, product, or manufacture of the United States" entitled to duty-free entry into the Philippines, as was done in regard to "all articles the growth or product of or manufactured in the Philippine Islands from materials, the growth or product of the Philippine Islands, or of the United States, or of both" entitled to duty-free entry into the United States.

There have been no amendments by Congress to the original provisions of the act of August 5, 1909, admitting American goods into the Philippines free of duty, except as to rice, which was also made duty-free by Section IV, C, of the United States tariff act of October 3, 1913.

Philippine Import Tariff of August 5, 1909, on non-American Goods.

The expiration of the provisions in the treaty of peace granting Spanish goods and vessels equality of treatment in the Philippines with those of the United States for a period of 10 years and the inauguration of mutual free trade between the United States and the Philippines,[21] raised the problem of a new import tariff to be applied in the Philippines to goods of non-American origin.

The Philippine import tariff enacted by Congress and approved August 5, 1909, which became applicable on October 5, 1909, to foreign merchandise entering the islands, was designed primarily to yield the greatest possible amount of revenue consistent with the duty-free status of American goods in the islands. The new tariff was intended as a corollary to the limited duty-free trade provisions of the Payne bill respecting Philippine products entering the United States. The rates were not identical with those of the United States tariff act of 1909, and were not intended to give all American products entering the islands a degree of protection mathematically equal to that afforded in the home market. There was some attempt to stimulate certain Philippine industries, either established or considered potential, by placing raw materials on the general free list regardless of origin, or by

[20] Primera Legislatura Filipina, Segundo Periodo de Sesiones. Actas de la Comisión, p. 263.
[21] The United States tariff act of 1909, sec. 5, and Philippine tariff act of 1909, sec. 12.

admitting them at low rates of duty although they were duty free from the United States. But the articles and raw materials placed on the general free list of the Philippine import tariff were not of great importance in relation to the whole Philippine import trade. This was all in line with the revenue-producing purpose of the tariff, but it was also evident that a great expansion of the general free list or very low rates on imports of non-American origin would have tended either to prevent tariff preferences for American goods or to diminish the possible benefits of such preferences by reducing their magnitude. Under these circumstances it was obviously not possible to protect Philippine industry comprehensively by means of the tariff against potential competition from the United States, since protection to a local industry almost inevitably meant protection of the corresponding American product in the Philippine market.[22]

Under the Philippine organic act approved August 29, 1916, the Philippine Legislature, which became wholly elective under the act, was authorized to enact tariff legislation for the islands, subject to the approval of the President of the United States, but Congress expressly reserved to itself the exclusive right to govern by its own laws the trade relations between the Philippines and the United States. This authority to enact tariff legislation for the islands has been used sparingly by the Philippine Legislature. The principal changes made relate to the duty-free admission into the islands of copra from the island of Guam as of 1918 and to the increase of the following Philippine duties: On foreign rice in 1922; on cement in 1925, and again in 1931; and on cattle, to become effective in 1931. The rates of the import tariff therefore remain substantially unchanged from those enacted by Congress in 1909, more than 20 years ago.

PHILIPPINE EXPORT DUTIES

Philippine Export Duties Under the Earlier American Administrations.

Export duties were a part of the Philippine revenue system before American occupation of the islands and were continued under American administration until 1913. By far the largest proportion of Philippine export duties were derived from manila fiber, the production and stripping of which has been practically a natural Philippine monopoly until the present time. The removal of export duties on Philippine products going to the United States accompanied the first reduction in United States duties on Philippine products under the act of March 8, 1902, and was therefore one of the first steps taken by Congress in the development of American commercial policy in the Philippines.

The military government found a moderate schedule of export duties in effect in 1898 on the principal Philippine products, and this was continued until November 15, 1901, under the United States provisional customs tariff and regulations in accordance with the Executive order of President McKinley, dated July 12, 1898. No distinction was made during this period between the export rates to the United States and to other countries, and they were regarded simply as an item of Philippine revenues.

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[22] As a measure of incidental protection to American sugar producers and American tobacco producers and manufacturers, it was provided in sec. 5 of the United States tariff act of 1909 that sugar and tobacco entering the Philippines from countries other than the United States should not be dutiable at rates less than those of the United States tariff on foreign sugar and tobacco. In other respects, as regards rates on imports of non-American origin, the Philippine tariff act of 1909 was a separate congressional measure from the United States tariff act of 1909, although both were approved on the same date.

The Philippine customs tariff act of 1901, first enacted by the United States Philippine Commission [23] and reenacted by Congress early in 1902 [24] following the decision of the United States Supreme Court in the Fourteen Diamond Rings case and the so-called insular cases, continued the export duty system in the Philippines. Except on manila fiber and copra, upon which rates had already been doubled by the Philippine customs tariff of 1901, the rates were left substantially as they had been in the United States provisional customs tariff and regulations.[25]

It was provided, however, in the act of 1902, that any American import duties levied upon importation of Philippine products into the United States would be subject to deduction of any Philippine export duties paid thereon; and, further, that products of the Philippines shipped direct to the United States for use and consumption therein would not be liable to export duties in the Philippines if they were on the free list of the United States tariff.

Later Legislation Respecting Philippine Export Duties.

Under the congressional act of March 3, 1905, the Philippine export duty on rice was removed. Rice had not been a factor in Philippine exports for many years, nor has it been important as such at any time since the American occupation.

The congressional Philippine tariff act of August 5, 1909, section 13, reduced the number of Philippine products subject to export duties to the five principal export products: Abacá (manila fiber), sugar, copra, tobacco manufactured or unmanufactured, and tobacco stems, clippings, and other wastes of tobacco. This act included a general prohibition against export duties upon all Philippine products coming directly from the islands to the United States or any of its possessions, for use and consumption therein.

Complete abolition of all Philippine export duties was provided for in the act of October 3, 1913, and this policy of duty-free exportation was further confirmed by the Philippine autonomy act of 1916, which conferred upon the Philippine Legislature the power to enact tariff legislation for the islands, but prohibited the levying of export duties.

Table 2 presents a complete schedule of Philippine export duties from the time of American occupation in 1898 to 1913.

Exports of Manila Fiber, Under Exemption from Export Duties When Shipped to the United States.

During the early years of the American occupation manila fiber was by far the leading export product of the Philippines to all countries and to the United States. In 1899–1902 an average annual value of $9,356,000 in manila fiber was shipped to the United States, which was then 31 per cent of all manila fiber exported and 95 per cent of the value of all Philippine products shipped to the United States. In 1929 the value of manila fiber shipped to the United States was $12,276,000, as compared with $9,527,000 in 1928, the United States receiving 43 per cent and 36 per cent, respectively, of the total value of shipments to all destinations. Shipments of the fiber to the United States represented 9.9 per cent in 1929 and 8.2 per cent in 1928, of the value

[23] Act No. 230, United States Philippine Commission.
[24] Act of Mar. 8, 1902.
[25] Executive order, Washington, D. C., July 12, 1898.

of all Philippine products shipped to the United States, as compared with 95.1 per cent in 1899–1902.

Prior to 1902 the greater part of the manila fiber shipped to the United States was generally handled through foreign (non-Filipino) middlemen at intermediate foreign ports, and Congress, through the act of March 8, 1902, sought to correct that anomalous situation respecting this important raw material for American industry produced in a possession of the United States.

An examination of the movement of manila fiber, before and after the exemption as well as after the removal in 1913 of the export duty, does not reveal American monopolization of the fiber.

Table 25 shows the export movement of manila fiber from 1899 to 1929. Table 3 indicates separately average prices of manila fiber shipped to the United States and to other destinations during the period when under the congressional act of March 8, 1902, this commodity was exempted from export duties if shipped to the United States.

Part II

COMPARATIVE TRADE AND TARIFF ADVANTAGES

PHILIPPINE-UNITED STATES COMMODITY TRADE BALANCES, TARIFF PREFERENCES, AND TARIFF LEVELS

Philippine Commodity Trade Balances with Continental United States and with Other Countries and Regions.

Commodity trade balances between the Philippines and the United States are best considered on the basis of Philippine commercial statistics, so that the difference in tendency of concurrent balances of the Philippines with countries other than the United States may also be shown.

During the whole 32-year period from January 1, 1899 (about four and one-half months after the American occupation of Manila) to December 31, 1930, the balance of commodity trade between the Philippines and continental United States was favorable to the islands by about $381,194,000.[1] In other words, the total imports from the United States during that period were $1,170,397,000 and the total exports $1,551,591,000, the exports exceeding the imports by 32.6 per cent. During the same period the balance of commodity trade between the Philippines and all foreign (non-American) countries and regions together was unfavorable to the islands by about $126,706,000, imports of $1,083,099,000 exceeding exports of $956,393,000 by 13.2 per cent.

Supplies for use and consumption of the United States services in the Philippines, originating both in the United States and in other countries, are included in the trade figures for the Philippines beginning July 1, 1910, and can not be segregated. These purchases from the United States for the Army alone may be tentatively placed (based on estimates only) at not less than $50,000,000 and from other countries at not less than $10,000,000 during the 19½ years from July 1, 1910, to December 31, 1930, and should be subtracted from strictly Philippine imports, since they were paid for by American taxpayers and not by the Filipinos. With these deductions, the remaining balance favorable to the Philippines in their commodity trade with the United States may be placed at not less than $431,194,000, the exports exceeding commercial imports by 38.5 per cent; and the remaining balance unfavorable to the islands in their commodity trade with all foreign countries and regions together would be not more than $116,706,000, commercial imports exceeding exports by 12.2 per cent. These balances cover substantially the whole period of American occupation of the Philippines to the end of 1930.

[1] Not including a nominally unfavorable balance of about $5,160,000 to the Philippines during 1899–1929, which was 72.7 per cent in excess of exports to the American possessions, Hawaii, Guam, and Porto Rico, the balance arising principally through Philippine importations of coffee and of sugar machinery from Hawaii.

Either with or without the exclusion of a part of the imports for the United States Government into the Philippines, estimated above on a conservative basis, the figures clearly indicate a continuing tendency of Philippine shipments to the United States to exceed very considerably their imports from this country; while Philippine imports from foreign countries and regions show an almost constant tendency to exceed their exports to those destinations.

From the beginning of American occupation of the Philippines to the beginning of the reciprocal duty-free trade period in 1909 commodity trade balances in each year were favorable to the islands in their trade relations with continental United States, and continued so during the first year of mutual duty-free trade. From July 1, 1910, to the first full year of the World War, 1915, Philippine commodity trade balances with the United States fluctuated from year to year, but on an average were unfavorable to the islands. However, importations for the United States Government during this period (which are included in the only available Philippine import figures) were no doubt sufficiently large to offset the average nominal unfavorable balance just mentioned.

Beginning with the second full year of the World War, 1916, Philippine commodity trade balances with the United States have been favorable to the islands in every year except 1919 and 1921, and generally increasingly so beginning with 1923, which was the first full year following the United States tariff act of 1922. During the six years 1923–1928, under the tariff act of 1922 (which increased the measure of American tariff preference to leading Philippine export products), the average annual commodity balance in favor of the islands in their trade with the United States was about $36,012,000, the annual average exports of $103,839,000 exceeding imports of $67,827,000 by 53.1 per cent. During 1929 the favorable balance to the islands in this trade was $31,872,000, and in 1930 it was $27,159,000. With the elimination of imports for the United States services into the Philippines, the average annual commodity trade balance in favor of the islands during 1923–1930 in their trade with the United States was not less than $36,000,000.

Over the whole period, January 1, 1899–December 31, 1930, the proportion of total Philippine imports taken from continental United States was 52 per cent, as compared with 62 per cent of total Philippine exports shipped to the United States.[2] It was only during the fiscal year 1913, the six months ending December 31, 1913, and during the calendar years 1915, 1919, and 1921, that the proportion of Philippine total imports coming from the United States exceeded the proportion of Philippine total exports going to the United States.

Table 4 shows the annual, the average annual and total commodity trade and trade balances, and also the proportions of Philippine import and export trade with continental United States and with all other countries and regions, practically from the beginning of American occupation of the islands to the end of 1930.

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[2] After the remission by Congress in 1902 of Philippine export duties on Philippine products shipped to the United States if such products were on the general free list of the United States tariff, direct shipments of manila fiber to the United States increased greatly and, until the beginning of reciprocal duty-free trade in 1909, were generally reflected in much larger proportions of Philippine total exports going to, than of total imports coming from the United States.

Comparative Amounts and Proportions of Philippine-United States Trade Reciprocally Favored Through Duty-Free Trade Relations.

It is recognized that it would be difficult and impracticable to measure the full scope of comparative United States-Philippine tariff benefits by mathematical standards; even a partial measurement is difficult because practically there are no tariff barriers between them.[3] Nevertheless, certain definite trends may be ascertained by finding the amount of trade exempted from duty on each side, and establishing the periods when duty-exempt trade values were greater on one side than on the other.

From the beginning of duty-free trade between the Philippines and the United States in 1909 until the end of 1929, imports into the United States from the Philippines, valued at about $797,341,000, were given tariff preferences, the remaining $560,592,000 being on the general free lists of the United States tariffs regardless of origin.

During the same 20½-year period imports into the Philippines from the United States and its possessions, valued at about $1,044,059,000, were given Philippine tariff preferences. But this amount included large importations into the Philippines, from July 1, 1910, to the end of 1929, for or for account of the United States Government, of which the exact amount can not be ascertained but which are estimated at not less than $50,000,000 for the Army alone. If this estimated amount of United States Government purchases is eliminated from the Philippine figures, it appears that from the beginning of mutual free trade to the end of 1929 the value of American goods receiving tariff preferences in the Philippines exceeded by not over $196,718,000, the value of Philippine products receiving tariff preferences in the United States under the reciprocal duty-free trade status.

In every year from the beginning of reciprocal duty-free trade relations in 1909 to and including 1921, Philippine importations of tariff-favored goods from the United States and its possessions exceeded by considerable margins the values of similarly favored Philippine products imported into the United States. While this tendency continued in 1922, the margin in favor of American trade exempt from duty in the islands was reduced to a relatively small figure in that year, if importations into the Philippines for account of the United States Government services are deducted. But beginning with 1923 (the first year following enactment of the United States tariff act of 1922) to and including 1929, American importations of tariff-favored Philippine products have exceeded Philippine importations of tariff-favored American products[4] in each year except one; this was in 1926, when imports from the Philippines into the United States were larger by about $1,453,000, which no doubt was more than offset by shipments received in the Philippines for account of the United States Government during that year. The annual average amount of American importations of tariff-favored Philippine products during the 5-year period 1924–1928 exceeded by about $6,323,000 the annual average value of shipments of tariff-favored American products into the Philippines during that period, and in 1929 the excess was $5,333,000. These amounts would be increased considerably if

[3] Except the 20 per cent limitation on the value of permissible foreign material content in Philippine products admissible duty free into the United States.

[4] The corresponding statistics for the Philippines for 1930 are not available as this is written, but it is evident from preliminary figures that the tendency described continued during that year.

United States Government purchases for its services in the islands were deducted from Philippine imports.

A comparison of this reciprocally tariff-favored trade during typical years under operation of the United States tariff acts of 1909 and 1922 (Philippine tariff rates meanwhile having remained practically unchanged) reflects the increased tariff favors accorded by the United States to Philippine products. During the three fiscal years 1911–1913 the annual average value of American products exempt from duties in the Philippines because of their origin was about $21,605,000; this amount was increased to an average of $75,566,000 during the three calendar years 1926–1928, and to $92,587,000 in 1929. On the other hand, during the same periods, the annual average value of Philippine products exempt from duties in the United States because of their origin increased from $9,364,000 during 1911–1913, under operation of the act of 1909, to an annual average of $81,466,000 in 1926–1928, and to $97,920,000 in 1929, under the tariff act of 1922.

Comparing the amounts of trade reciprocally exempted from duties under the mutual free-trade relationship the United States had the advantage by considerable margins in every year to and including 1921. In 1922 and 1926, the differences were not important, if allowance is made in those years for Philippine imports for use of the United States services in the islands. But in 1923, 1924, 1925, 1927, 1928, and 1929, the advantage in the amount of trade reciprocally exempted from customs duties turned definitely to the Philippines by margins of varying importance: In 1923, $1,496,000; in 1924, $9,571,000; in 1925, $4,347,000; in 1927, $14,641,000; in 1928, $4,512,000; and in 1929, to $5,333,000. To these amounts should be added the value of Philippine importations for use of the United States services in the islands.

The proportion of United States products enjoying tariff preferences in the Philippines under duty-free trade relations has never been less than 97 per cent, while the proportion of Philippine trade so favored in the United States has ranged from as low as 22.5 per cent (during the World War year 1917–18) to a maximum of 77.8 in 1929.

In comparing the amounts and proportions of United States and Philippine trade reciprocally exempted from duties, it should be noted that practically all Philippine products shipped to the United States which were not accorded tariff preferences because of their Philippine origin would have been entitled to free entry under the general free lists of the United States tariffs as applied to similar products of any origin.

The annual amounts and proportions of Philippine-United States trade reciprocally exempted from import duties from 1909 to 1929 are shown in Table 5.

Comparative Amounts of Duties Waived under Mutual Free Trade.

As in respect to duty-exempt trade values,[5] the amounts of duties mutually waived are not conclusive as to the tariff benefits conferred and received through the duty-free trade relationship between the United States and the Philippines.[5] But an examination of these amounts, particularly of their trend during later periods when the trade involved was more fully developed, affords some indication of the comparative advantages to each side through the duty-exempt trade relationship.

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[5] See p. 17.

In comparing the respective tariff advantages enjoyed by American and Philippine products under reciprocal duty-free trade, the amounts of duty waived on either side must not, of course, be regarded as effecting in all cases a corresponding addition to the export price. For much of the trade, these mutual tariff preferences may have no effect whatever on export prices, particularly in the case of American goods shipped to the Philippines, where they usually compete with foreign goods under much lower levels of tariff preference than that enjoyed by Philippine goods in the more highly protected markets of the United States. In other cases, however, the producers do get a much higher price than they could in the absence of the tariff preference.

A conspicuous example of an effective tariff preference reflected in increased prices to exporters is afforded by Philippine sugar, which is sold in the American market at prices closely approximating those received by Cuban exporters for the same grades, plus the American duty. Since the price of sugar in the American market is determined by the dutiable imports from Cuba—because the largest part of our necessary supply is derived from that country—shippers of duty-free sugar from the Philippines and other sources enjoy a price advantage substantially equal to the duty on Cuban sugar, less any disadvantage in costs of transportation as compared with Cuban sugar.

The total amount of import duties nominally waived on the American side as a result of duty-free entry of Philippine products into the United States, from the beginning of free trade in 1909 to the end of 1929, was about $512,157,000. This compares with a total of $240,616,000 waived in the Philippines on American products entering the islands free of duty during the same period. The Philippine total would be somewhat less if deduction were made for duties waived upon shipments for account of the United States Government in the Philippines, which were not commercial importations purchased by the Philippine population.

Though useful as indicating the respective trade advantages, the gross figures given above are unduly magnified by the inclusion therein on both sides of relatively large importations of tobacco products. Large numbers of certain grades of Philippine cigars are imported duty-free into the United States and large numbers of American cigarettes are imported duty-free into the Philippines, but dutiable importations of these articles from foreign countries are small, because the rates of duty on both sides are very high and practically identical. But notwithstanding the high duties on foreign tobacco products—the duties on such products being very high in practically all countries—United States market prices of Philippine cigars and Philippine market prices of American cigarettes are in fact lower than the duties on the foreign articles. It is therefore clear that the amount of duties actually waived on either side is smaller than the hypothetical amount arrived at by applying to these large duty-free importations of cigars and cigarettes the high rates of duty actually collected only on very small importations from foreign countries. Moreover, it is clear that these large mutual tariff preferences on cigars and cigarettes have not resulted in corresponding higher prices on either side, and that the high duties on these articles when imported from foreign countries could never have been collected on anything like the large quantities

actually shipped under mutual free trade in both directions. Tobacco shipments should therefore be omitted from the above comparison showing total duties nominally waived on both sides.

After subtracting from the above totals the duties nominally waived on tobacco and tobacco products, the total of duties waived by the United States is reduced to about $255,237,000, and the Philippine total to about $174,025,000, computing both amounts from the beginning of free trade in 1909 until the end of 1929.

With the elimination of all tobacco from consideration on both sides, the remaining nominal tariff concession by the Philippines [6] was generally greater than that of the United States [7] from the beginning of free trade in 1909 to the end of 1920. Beginning with 1921, however, the nominal tariff concessions by the United States (even with all tobacco eliminated) were invariably greater than on the Philippine side. Moreover, the amounts of nominal Philippine concessions in every year (except the fiscal year 1910) would be materially reduced after eliminating the duties computed upon United States Government purchases, which can not be separated from the figures covering Philippine commercial imports.

The apparent amount of the United States waiver of duties upon shipments of Philippine sugar alone, from the beginning of limited duty-free trade in 1909 to the end of 1930, was about $190,000,000, computed at the special preferential rate of duty upon Cuban sugar during the same period. This waiver of sugar duties alone—about $190,000,000—was greater than the corresponding concession of about $174,025,000 in the Philippines on all American goods together, except tobacco and tobacco products, from the beginning of reciprocal duty-free trade in 1909 to the end of 1929.[8] In 1930 the American concession to Philippine sugar, measured in duties waived, was about $29,363,000; in 1929 it was $25,086,000; and the annual average during the five years 1924–1928 was about $16,361,000, these amounts being computed at the preferential rate on Cuban sugar.

The foregoing comparison shows that, measured by the amounts of duties nominally remitted on both sides, without excluding tobacco products, the amounts waived in the Philippines on shipments from the United States since the beginning of duty-free trade have generally been much less than the amounts waived by the United States on Philippine products, the average ratio in favor of the islands having been more than two to one. If tobacco products are excluded on both sides, this advantage in favor of the islands still holds true for the years 1922 to 1929, inclusive, the remaining total of duties waived by the United States during this period amounting to about $201,417,000, as compared with $87,696,000 waived by the Philippines.

The amounts of duties reciprocally waived by the United States and the Philippines to the end of 1929, by virtue of the existing duty-free trade relations, are conveniently summarized in Table 6, by years, annual averages, and accumulated totals.

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[6] Except in the fiscal year 1910, for which year United States Government purchases are not included in Philippine import statistics.

[7] Except in the fiscal year 1912, when United States importations of Philippine sugar were unusually heavy.

[8] If statistics were available for estimating the duties waived during 1930 in the Philippines on American products, it would probably be shown that the duties thus waived during 1909–1930, excluding those on tobacco and tobacco products, were about equal in amount to the $190,000,000 waived during the same period by the United States on Philippine sugar alone, computed at the preferential rate applicable to Cuban sugar.

Comparative Ad Valorem Equivalents of Duties Reciprocally Waived by the United States and the Philippines through Duty-Free Trade Relations.

A comparison of reciprocal tariff treatment in terms of general ad valorem equivalents of the respective import duties shows that during the whole duty-free trade period from 1909 to 1929, with the sole exception of 1920,[9] the ad valorem equivalent of the United States duties nominally waived upon Philippine products was always very considerably higher than the corresponding ad valorem equivalent of Philippine duties nominally waived upon American products. This relation holds true regardless of whether shipments of tobacco and tobacco products are included in or excluded from the comparison on both sides.

From the beginning of duty-free trade relations with the Philippines to the end of 1929 the average computed ad valorem equivalent of duties nominally waived by the United States on Philippine products was about 64 per cent, or nearly three times as great as the corresponding average of 23 per cent nominally waived in the Philippines on products of the United States. It should be noted, however, that these figures lose much of their significance if allowance is made on both sides for duty-exempted shipments of tobacco and tobacco products, upon which but a fraction of the nominally high tariff preference was effective. But even if the trade in tobacco and tobacco products is eliminated from the computation, the ad valorem equivalent of duties waived by the United States on Philippine products from the beginning of duty-free trade to the end of 1929 was much greater in every year, except 1920, than that of the Philippines on products of the United States.

A convenient summary of the comparative ad valorem equivalents of duties reciprocally remitted is presented in Table 7, by years and annual averages.

Levels of the Philippine Import Tariffs Preceding Philippine-United States Duty-Free Trade Relations.

Specific rates of duty were levied in the Philippines during the first three years of American occupation. In the tariff revisions of 1901 and 1905 a few ad valorem and minimum ad valorem rates were introduced, but specific rates greatly predominated both in numbers and effect.[10]

Under the United States provisional tariff in the Philippines [11] the ad valorem equivalent of duties collected on all dutiable goods imported from all sources was 24.95 per cent; under the tariff of 1901 [12] it was 22.74 per cent; and under the tariff act of 1905, it was 24.91 per cent. This computation disregards all duty-free imports, and covers about 95 per cent of the periods when these tariffs were in force.

The general free lists of the earlier Philippine tariffs were of limited importance. Under the tariff of 1905 the free list included about 8 per cent of all commercial importations, principally live animals, refrigerated meats, and fresh milk. There were few Philippine industries demanding duty-free raw materials. Moreover, the revenue

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[9] The exception is accounted for by the high prices received for Philippine sugar in 1920, and the conversion of the constant specific rates of duty on sugar into ad valorem equivalents for the purpose of this comparison.

[10] Numerous ad valorem and minimum ad valorem rates were incorporated in the later tariff of 1909 (which is still in effect), applying to goods of non-American origin.

[11] Adapted from the Spanish colonial tariff.

[12] Reenacted by Congress in the act of Mar. 8, 1902.

purpose of the earlier tariffs precluded extensive free lists applying to commercial imports. Supplies for the United States and Philippine Governments, however, entered duty-free, from any source.

The ad valorem equivalents of duties collected during the fiscal years 1906–1909, the last four years immediately preceding duty-free trade with the United States, on some of the principal groups of Philippine commercial imports, computed on dutiable values, are shown in the following table:

Ad valorem equivalents of Philippine import duties collected on American goods 1906–1909

Philippine commercial imports	Range of ad valorem equivalents	Proportion of total dutiable Philippine imports
	Per cent	*Per cent*
Wheat flour	8. 7– 9. 5	3. 8
Meat and dairy products	11. 6–13. 3	3. 7
Leather and manufactures of	14. 4–16. 8	2. 0
Iron and steel and manufactures of, including machinery	15. 1–15. 5	8. 1
Wood and manufactures of	18. 1–21. 5	1. 6
Vegetables	18. 9–21. 0	. 8
Rice	21. 4–32. 4	17. 4
Paper and manufactures of	23. 6–24. 7	1. 8
Cotton and manufactures of	25. 2–28. 7	28. 8
Mineral oils (principally illuminating kerosene)	40. 1–44. 5	2. 8
Spirits, wines, and malt liquors	57. 1–71. 6	2. 2

Levels of the Philippine and United States Import Tariffs, Respectively, Following Inauguration of Reciprocal Duty-Free Trade.

The rates of the Philippine import tariff of 1909, as planned and as enacted by Congress, were in general considerably lower than those of the United States tariff act of 1897, with which they were compared in Congress when the bill was under scrutiny.[13] It was sought by Congress to give American goods tariff preferences in the Philippines, but not as great a measure of preference or protection as they had in the markets of the United States. The rates of duty had to be fixed at points which would not be unproductive from a revenue standpoint, and care was taken not to make them so high as to discourage completely the importation of non-American dutiable goods into the islands. The intention was to make the ad valorem equivalent of the Philippine import tariff of 1909 about 23.2 per cent,[14] computed on the basis of all dutiable importations expected from countries other than the United States. The number of ad valorem and minimum ad valorem rates was greatly increased in the Philippine tariff of 1909, although specific rates still predominated.

The intended ad valorem equivalent of 23.2 per cent was very closely approached by actual results during the first full fiscal year of operation of the act, July 1, 1910–June 30, 1911. The ad valorem equivalent of duties collected during that year under the Philippine import tariff of 1909 was 23.8 per cent, computed on the basis of

[13] The average levels of the three earlier consecutive Philippine import tariffs following American occupation of the islands in 1898 and preceding the tariff of 1909 were 24.95 per cent, 22.74 per cent, and 24.91 per cent ad valorem equivalent, respectively, computed on the basis of dutiable values imported from all sources, including the United States. Most of the rates in these tariffs were specific, although a limited number of ad valorem and minimum ad valorem rates had been incorporated in the two later tariffs of 1901 and 1905.

[14] S. Rept. No. 9, 61st Cong., 1st sess., p. 97, letter of Col. George R. Colton, insular collector of customs, June 17, 1909.

dutiable values. The highest point reached to the end of 1929 was 24.7 per cent ad valorem equivalent, during the calendar year 1915; and the lowest was 12.8 per cent, during the calendar year 1920. The extreme variation between individual years was therefore nearly 12 per cent ad valorem.

The decreases in ad valorem equivalents of the Philippine tariff of 1909 during a part of the World War period and the years following the war may be attributed generally to the regressive effect of a predominating number of specific rates of duty, nearly all of which remained unchanged during these periods of increasing prices.[15]

That the rates of the Philippine import tariff, as fixed in 1909 on competing goods of non-American origin, have been fairly satisfactory from the Philippine viewpoint, is evidenced by the fact that the Philippine legislature has made few changes in the rates of that tariff, although authorized to do so under section 7 of the act of Congress of August 29, 1916.[16]

Table 8 presents a comparison of the approximate levels of the Philippine and United States import tariffs from the first full fiscal year following reciprocal duty-free trade (1911) to 1929.

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[15] During the period July 1, 1910–December 31, 1914, an average of about 62 per cent of the value of all dutiable importations was subject to unqualified specific rates of duty, and during the calendar years 1922–1926 the average was about 61 per cent.

[16] Under the authority of this act, products of Guam entering the Philippines were granted duty-free entry in 1918; the duties on rice were increased in 1922; those on cement in 1925 and again in 1931; and those on cattle in 1931.

Part III

DEVELOPMENT OF PHILIPPINE-UNITED STATES TRADE

PHILIPPINE SHIPMENTS TO THE UNITED STATES

Increase of Philippine Shipments to the United States During the Preferential Tariff Period (Fiscal Years 1903–1909).

The annual average value of Philippine exports to all destinations during the 5-year period 1890–1894 under Spanish sovereignty was $20,063,000, of which 17 per cent was shipped to the United States. This was the last relatively long normal period preceding the American occupation and was followed by the serious revolt of 1896 against Spain.

Soon after American occupation, during the three fiscal years 1900–1902, the annual average value of Philippine exports to all destinations was $22,298,000, of which 21 per cent was shipped to the United States. This period ended a few months after the 25 per cent tariff reduction was accorded to Philippine products in the United States, and during the earlier part of this period there was still armed resistance to American authority in the islands.

During the seven fiscal years 1903–1909, following practical pacification of the islands under American occupation, the annual average value of all Philippine exports to all destinations was $32,166,000, of which 38 per cent was shipped to the United States. During these years a tariff reduction of 25 per cent of the duty was granted Philippine products in the United States under the act of March 8, 1902. Average annual Philippine exports to all destinations during the period 1903–1909 exceeded those during the Spanish period 1890–1894 by $12,103,000 and exceeded those of the early period of American occupation, 1900–1902, by $9,868,000. But this increase was more than accounted for by the gain of $15,792,000 (as compared with 1890–1894), and largely accounted for by the gain of $8,412,000 (as compared with 1900–1902), in the annual average Philippine world exports of manila fiber and copra, both of which were duty free in the United States, and therefore not affected by the 25 per cent tariff reduction accorded in 1902.

It was expected that the 25 per cent tariff preference accorded in 1902 to Philippine goods would increase shipments to the United States of sugar and tobacco products, the two leading Philippine export products to all destinations (except manila fiber), both during the years 1890–1894 of Spanish sovereignty, and during the earliest years of American occupation. But the annual average value of these shipments to the United States—sugar and tobacco products combined—decreased slightly by $177,000 during the 7-year preferential tariff period (1903–1909) as compared with the 5-year Spanish period (1890–1894). Compared with the early 3-year period of American occupation (1900–1902), before the tariff preference was in effect, the annual average value of these shipments increased by $988,000 under the 25 per cent tariff preference accorded in 1902.

This tariff preference had its largest effect, slight as it was, on Philippine sugar. During the seven fiscal years when the 25 per cent tariff preference was in effect, 1903–1909, the proportion of all Philippine sugar exports shipped to the United States increased to 25.4 per cent, which compares with 17.8 per cent shipped to the United States during the Spanish period from 1890–1894, and with only 5 per cent shipped during the nonpreferential tariff period of American occupation, 1900–1902. However, the increased average proportion of Philippine sugar shipped to the United States during 1903–1909 was not specially significant (since no large tonnage was involved), and was far exceeded by the much larger proportions reached in later years under duty-free trade.

As regards Philippine tobacco products, the American tariff preference of 25 per cent accorded in 1902 had no substantial effect in increasing the amounts shipped to the United States, as compared either with the Spanish period, 1890–1894, or with the early American period, 1900–1902.

There were several factors tending to restrict the increase of Philippine sugar production for export during the last years of Spanish sovereignty, 1895–1897, and during the earlier years of American occupation, 1898–1901. There was the revolt of 1896–97 against Spain, the Spanish-American War of 1898, and the revolt of 1899–1901 against the United States. There was also a lack of efficient production methods; no centrifugal sugar was produced during this period. Finally, European bounties on beet sugar had practically closed certain markets against tropical cane sugar. It required time for Philippine sugar production to recover from the effects of these wars and other unfavorable conditions. During the preferential tariff period (1903–1909) some of these obstacles to production of sugar for export had been removed through pacification of the islands and by the abolition of the beet-sugar bounty system under the Brussels sugar convention of March 5, 1902. But there still remained a number of other obstacles to greater development of cane-sugar production in the islands: (1) Reluctance of foreign investors to develop the islands owing to uncertainty as to their political status; (2) statutory limitations of landholding by agricultural corporations to a maximum of 1,024 hectares (2,530 acres);[1] (3) obsolescence in methods of production; (4) duty-free admission of Porto Rican and Hawaiian sugar into the United States; (5) reduction of 20 per cent in United States import duties on Cuban sugar (the nominally greater tariff preference of 25 per cent on Philippine sugar was possibly offset, largely if not wholly, by the freight differential against Philippine sugar). The reduction of 25 per cent in United States duties on Philippine sugar by the act of March 8, 1902, was apparently not sufficient to overcome these disadvantages affecting export production of Philippine sugar, for the maximum exported to the United States in any one year under this 25 per cent tariff preference was only 46,000 long tons, in the calendar year 1908, immediately preceding the inauguration of duty-free trade relations.

The large increase in manila-fiber shipments to the United States during 1903–1909 followed the act of March 8, 1902, which abolished Philippine export duties on products shipped directly to the United

[1] Act of Congress approved July 1, 1902, secs. 15 and 75.

States if they were on the general free list of the United States tariff, and to increased prices of the fiber. (See Tables 3 and 25.)

Table 9 shows the changes in character of Philippine export trade to the United States and to all other countries, by annual average values of leading products, for the periods 1890–1894, 1900–1902, and 1903–1909.

Table 10 shows the annual and annual average values and the proportions of leading Philippine products exported to all countries and to the United States during 1900–1902 and during 1903–1909.

Comparative Increase in Philippine Shipments to the United States, Distinguishing (a) Products Admitted Free of Duty Because of Their Philippine Origin (Preferential Free Entry), and (b) Philippine Products on the General Free Lists of the United States Tariffs.[a]

During the seven years preceding the United States tariff act of 1909 all dutiable Philippine products shipped to the United States enjoyed a reduction of 25 per cent of the duty. This tariff reduction was changed to complete exemption from duty by section 5 of the act of August 5, 1909,[2] which accorded duty-free entry into the United States for all direct shipments of Philippine products, except rice and articles containing more than 20 per cent non-Philippine or non-American materials. The exception as to rice was removed under Section IV, C, of the act of October 3, 1913, but there have been practically no shipments of Philippine rice to the United States, either before or after it became duty free in the United States.

During the first 5½-year period of duty-free admission of Philippine products into the United States, 1909–1914, an annual average value of about $9,099,000, or 45.3 per cent of all Philippine shipments to the United States, entered free of duty because of this tariff exemption. These shipments increased to an annual average of about $71,061,000 in the five years 1923–1927, or 70 per cent of all Philippine products shipped to the United States; and increased further in 1928 to $85,296,000, or 73.7 per cent, and in 1929 to $97,240,000, or 78.1 per cent of the total. From 1909 to 1914 the proportion of Philippine world exports of these products sent to the United States was 63.1 per cent, increasing in 1923–1927 to 87.8 per cent, in 1928 to 91.2 per cent, and in 1929 to 92.4 per cent.

In other words, the annual average value of Philippine products enjoying preferential free entry into the United States was about 7.8 times the 1909–1914 average in the years 1923 to 1927, about 9.4 times in 1928, and about 10.7 times in 1929. During the same periods the annual average value of Philippine products admitted to the United States under its general free list—and therefore without tariff preference—was multiplied less than three times.

A comparison of the values of Philippine products entering the United States under the general free lists of the United States tariffs shows that the progress in these shipments also was considerable, but much less important in Philippine export trade than the movement of products which were duty free because of the United States tariff

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[a] The value of the total Philippine exports to the United States during the years ended May 31, was $124,882,000 for 1929, $119,927,000 for 1930, and $95,442,000 for 1931; during the corresponding periods total exports to other destinations were $41,041,000, $35,181,000, and $25,486,000, respectively. Thus, compared with the corresponding period of 1928–29, the value of Philippine exports to the United States for the years ended May 31, 1930 and 1931, decreased 4 per cent and 23.6 per cent, with exports to other destinations decreasing 14.3 per cent and 37.9 per cent, respectively. (For a similar comparison of total Philippine imports during the same periods, see footnote *a*, p. 41.)

[2] At first, limitations (which were not reached during the term of their nominal operation) were placed upon the annual quantities of sugar, tobacco, and cigars, admissible free of duty, but these restrictions were removed under the tariff act of 1913.

preference. During the five and one-half years, 1909–1914, an annual average of about $10,983,000, or 54.7 per cent of all Philippine commodities shipped to the United States, came in under the general free list. This amount increased to an annual average of about $30,022,000 in the five years 1923–1927, but was only 29.6 per cent of total shipments to the United States; in 1928 the amount was about $29,652,000, or 25.6 per cent; and in 1929 $26,434,000, or 21.2 per cent of all Philippine shipments to the United States. In 1909–1914 the proportion of Philippine world exports of these products sent to the United States was 35.3 per cent; in 1923–1927 it increased to 53.7 per cent; in 1928 it was 51.2 per cent; and in 1929 48 per cent.

In 1930 Philippine shipments of all products to the United States amounted to $105,342,000, which was 79 per cent of all Philippine exports, and the highest percentage recorded for shipments to the United States.

Details of Philippine shipments enjoying preferential duty-free entry into the United States are given in Table 11,[3] showing the amounts and proportions shipped to the United States, by annual averages, for specified groups of years from 1909 to 1927, and separately for the years 1928 and 1929. The 10-year period from 1899 to 1909, preceding preferential duty-free entry of Philippine products into the United States, has also been included in Table 11 for ready comparison with later periods.

Corresponding details respecting Philippine products admitted into the United States under the general free list are shown in Table 12.

Increases in United States Imports from the Philippines, by Leading Commodities, 1909–1930.

Of the leading Philippine products entering the United States, practically all increased in average annual values during the 5-year period 1924–1928, as compared with the 4-year period first following the inauguration of duty-free trade, 1910–1913; for all commodities combined the increase was about $89,117,000. Of this increase about 77 per cent was accounted for by Philippine products enjoying duty-free entry during 1924–1928 because of the special free-trade relations with the United States,[4] while about 23 per cent consisted of products on the general free list and therefore enjoying no tariff preference during 1924–1928 because of their origin.

Imports into the United States from the Philippines in 1930 were about $109,390,000, and increased less than one-half of one per cent in value over the 1923–1928 average, but decreased 13 per cent in comparison with 1929. Concurrently United States imports from all sources decreased 24.5 per cent in value during 1930, as compared with the average of 1923–1928, and 30.4 per cent from 1929.

Table 13 indicates, by leading commodities, the consecutive annual average movement of leading United States imports from the Philippines for specified groups of years, from July 1, 1909, to December 31, 1930.

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[3] The sums of the respective columns in Tables 11 and 12 for the identical periods tabulated in both tables do not agree exactly with the total amounts of Philippine exports to the United States during those periods, but are deficient as compared with such totals. These differences are due to the omission from Tables 11 and 12 of a considerable variety of small Philippine exports to the United States which it would be extremely difficult to segregate, classify, and compare by annual average amounts, according to United States tariff treatment of similar products from other countries over the 30½-year period included in Tables 11 and 12.

[4] Philippine coconut oil first received a United States tariff preference under the emergency tariff act of 1921, when the oil was transferred from the general free list to the dutiable schedules.

Tables 13 (A) to 13 (S) show, respecting each leading commodity brought into the United States from the Philippines, the relative importance of that commodity among all imports from the Philippines, the proportion derived from the Philippines of United States total imports of that commodity from all sources, and the average computed ad valorem equivalent of United States import duties nominally waived respecting each item. Each of these tables deals separately with one of the commodities named in Table 13.

Philippine Sugar Movement to the United States, 1910 to 1929–30.

Table 14 shows the annual exportation of sugar, in long tons, from the Philippines to the United States and to all countries from 1885 to 1894, and from 1899 to 1929.

Under the act of July 1, 1902, a limitation of 1,024 hectares (2,530 acres) was placed by Congress on landholding in the Philippines by agricultural corporations. Under the congressional act of August 29, 1916, the Philippine legislature was empowered to legislate respecting landholdings in the islands, subject (in the case of public domain) to approval by the President of the United States, but that body has shown no disposition to remove the original limitation. This policy of limiting Philippine development by agricultural corporations has probably prevented further large-scale production of sugar and other agricultural commodities for export to the United States.[5]

Construction of the first modern centrifugal sugar factory in the Philippines was not begun until 1910, after the inauguration of duty-free Philippine trade with the United States. Before that date only muscovado sugar was shipped from the Philippines to the United States. In 1928 the Philippine Sugar Association reported 38 centrifugal sugar mills in operation in the islands, with a daily cane capacity of about 47,630 metric tons (46,877 long tons[6]). Before 1918 muscovado sugar exceeded centrifugal sugar in Philippine shipments to the United States, but since that year centrifugal sugar has uniformly predominated, except during 1920, when world sugar prices were exceptionally high.

A comparison of the average annual acreage in sugarcane cultivation and of the average yield in raw sugar per acre in the Philippines, during different consecutive periods since the inauguration of duty-free trade with the United States, indicates average increases in both acreage and yield to the end of 1928, but the average yield increased considerably more than the average area in cane cultivation during the six years 1923–1928 (following enactment of the United States tariff act of 1922), as compared with the six preceding years, 1917–1922.

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[5] In his report for 1923 Governor General Stimson makes the following statement:

"Economic development is further controlled by historic Filipino policy toward their public land. Their experience during the Spanish régime with large accumulations of land and other property in the hands of the friars, and the consequent tyranny from which they suffered, not only resulted in the passage of laws, under the American régime, strictly limiting the size of such landholdings in the future, but has also resulted in a general public sentiment against such large landholdings which is one of the strongest political sentiments which the average Filipino holds to-day. It is so strong as to be controlling upon their future legislation and can not be disregarded in any plan for the future development of the islands. The average Filipino believes that it is better for his country to be slowly and gradually developed by a population of comparatively small individual landowners than to be more rapidly exploited by a few large corporations which own the land and till it either with tenant farmers or hired employees. The existence of this native sentiment has not been generally recognized in the United States, but the events of my own year's experience brought it to my attention as one of the deepest and most controlling currents of public opinion in the islands and one which it would be folly to disregard or attempt to defy. In other words, I believe it is clear that agricultural development in the Philippines of a character which requires the coordinated production of large tracts of land must be reached by the cooperative efforts of a large number of haconderos or landowners grouped about a common central which guides, fosters, and finances them under contract, rather than by large holdings in fee by single corporations."

[6] Statistical Bull. of P. I., 1928, Table 40.

A more intensive cultivation of the sugarcane area is also indicated by increased Philippine importations of fertilizer, most of which probably was intended for sugarcane lands. During the calendar years 1922–1927, the average annual importation of fertilizers was $1,306,577, as compared with $62,586 during the six calendar years 1916–1921—a twentyfold increase; and during 1928 and 1929, respectively, fertilizers valued at $1,843,184 and $2,881,624 were imported.

The following tabulation shows the Philippine area cultivated in sugar and the average yield per acre in various consecutive periods:

Philippine area in sugar cultivation and yield per acre for stated periods, 1911–1929

Period	Sugarcane area in cultivation	Increase over preceding period	Raw-sugar yield per acre	Increase over preceding period
	Acres	*Per cent*	*Pounds*	*Per cent*
1911–1916, fiscal years, 6-year average	440,660		1,670	
1917–1922, fiscal years, 6-year average	523,314	18.8	1,830	9.6
1923–1928, fiscal years, 6-year average	576,391	10.1	2,286	24.9
1929, fiscal year	636,544	9.4	[1] 2,934	22.1

[1] In regard to increased sugar production during 1929, the Secretary of Agriculture and Natural Resources for the Philippine Islands stated:

"This extraordinary increase is the result of the establishment of a number of additional sugar centrals in the islands, as it has been observed that such increase was registered in those Provinces where centrals are located, especially in the Province of Tarlac, where the biggest central in the world was erected last year." (Annual Report of the Governor General of the Philippine Islands, 1929, p. 167.)

Table 15 shows the reported Philippine area under sugarcane cultivation and the yield of raw sugar per acre during the fiscal years 1910 to 1929 and an approximate correlation of Philippine importations of fertilizer and sugar machinery during the same periods.

In 1912, for the first time since American occupation of the islands, sugar displaced manila fiber as the leading commodity in point of value shipped to the United States, but after that year manila fiber again held the leading position until 1920. From 1921 to and including 1929, Philippine sugar shipments to the United States in every year were much greater in value than manila fiber. No doubt the control of sugar shipments during the World War was an important factor in checking the increase in shipments of Philippine sugar to the United States during that period.

The increasing importance to the Philippines of sugar shipments to the United States, after its duty-free admission since 1909, is brought out clearly in the following table, which compares the value of shipments for the calendar years 1928 and 1929 with annual averages during the earlier periods indicated.

Value and proportions of Philippine sugar shipments to the United States for stated periods, 1902–1929

Period	Value (thousands of dollars)	Per cent of total sugar exports shipped to United States	Per cent of total Philippine products represented by sugar exported to United States
July 1, 1902–June 30, 1909,[1] 7-year average	1,103	25.4	9.1
July 1, 1909–Dec. 31, 1914,[2] 5½-year average	6,392	71.7	31.8
Jan. 1, 1915–Dec. 31, 1918,[3] 4-year average	6,868	47.4	13.0
Jan. 1, 1919–Dec. 31, 1922, 4-year average	20,028	69.0	29.1
Jan. 1, 1923–Dec. 31, 1927,[4] 5-year average	37,269	91.2	36.7
1928 [4]	45,699	96.1	39.5
1929 [4]	52,161	98.0	41.9

[1] During this period Philippine sugar enjoyed a tariff reduction of 25 per cent from the United States duty on sugar.
[2] This pre-war period corresponds substantially to the 5½ years after duty-free trade was first established.
[3] Philippine sugar movement was controlled during a part of these World War years.
[4] Under the tariff act of 1922 Philippine sugar, admitted free of duty, enjoyed an increased tariff preference because of the increased duty on competing foreign sugar.

Following the inauguration of duty-free trade in 1909 the greatest movement of Philippine sugar into the United States market occurred after the increased tariff preference under the tariff act of 1922 had become effective. Based upon United States import figures (Table 16), the greatest quantity of Philippine sugar entering the United States in any one year to and including 1924 was 302,685 long tons (in 1924), although the greatest amount in value entering up to that time was in 1920, which was a year of exceptionally high world sugar prices. In 1930 United States imports of Philippine sugar were about 708,689 long tons. In each year following 1923, except 1926, the quantity of Philippine sugar imported into the United States increased as compared with the next preceding year, the increase (long ton) being 90,338 tons in 1924; 137,292 tons in 1925; 133,999 tons in 1927; 39,732 tons in 1928; 121,172 tons in 1929; and 74,111 tons in 1930 over 1929.

United States imports of Philippine sugar during the first eight months of 1931 were 678,908 long tons, as compared with 609,322, 548,097, and 447,374 long tons, respectively, during the same months in 1930, 1929, and 1928; the average for the first eight months during the six calendar years 1925–1930 was 440,818 long tons.

Table 16 presents a statement of Philippine sugar movement into the United States, since its first duty-free admission[7] in 1909, to and including 1930; with a number of comparisons showing the relative importance of these Philippine shipments, and stating the annual and total amounts of customs revenue nominally waived by the United States through duty-free admission of Philippine sugar. (See also Table 13 (A).)

The net increase in the annual average consumption of sugar in the United States, comparing the four years 1927–1930 with the immediately preceding four years 1923–1926, was 401,375 short tons. Comparing the same periods, the consumption of American continental cane and beet sugar increased 62,080 short tons, or 5.7 per cent; of

[7] Duty-free trade from the Philippines inaugurated Aug. 6, 1909.

cane sugar from Hawaii, Porto Rico, and the Virgin Islands, 306,852 tons, or 28.9 per cent; and of cane sugar from the Philippines, 281,538 tons, or 85.1 per cent. Meanwhile, the corresponding yearly consumption of Cuban sugar,[8] which was dutiable with 20 per cent reduction in rate, decreased 190,373 short tons, or 5.8 per cent; and of full-duty sugar from other countries, 58,722 tons, or 73.6 per cent.

Again contrasting the four consecutive years 1927–1930 with the immediately preceding years 1923–1926, it is found that during the later period the Philippines supplied 9.8 per cent of American sugar consumption as compared with 5.7 per cent during 1923–1926; Hawaii, Porto Rico, and the Virgin Islands, 22.0 per cent as compared with 18.2 per cent; while the share of continental United States declined slightly, from 18.6 to 18.5 per cent, and that of Cuba likewise decreased from 56.1 to 49.4 per cent.

Comparing 1930 with 1928, the American continental consumption of Philippine sugar increased about 219,000 short tons, and from Hawaii, Porto Rico, and the Virgin Islands, 59,000 tons, while the amount of cane and beet sugar supplied by continental United States decreased about 42,000 tons and sugar from Cuba, 168,000 tons.

Table 17 indicates by years, from 1913 to 1930, the consumption of sugar in continental United States, according to sources of supply.

The limitation at first fixed in 1909 for duty-free sugar importation from the Philippines was 300,000 long tons. After removal of that limitation in 1913, the quota originally fixed was not exceeded until 1924. Based upon the limitation of 300,000 long tons, had it been possible to ship that amount from the Philippines, the estimated United States per capita consumption of Philippine sugar would have been 7.3 pounds during the fiscal year 1910, at the time of its duty-free admission within the stated quantity limit. On the basis of estimated United States consumption of Philippine sugar, however, this per capita average would not have been exceeded until 1925, when it was 7.9 pounds, and would not have been reached in 1926, when it was 6.0 pounds. But in 1927, 1928, 1929, and 1930 the per capita equivalent of the limit referred to was considerably exceeded, as the consumption of Philippine sugar rose to 8.4, 9.0, 11.2, and 11.9 pounds per capita, respectively.

Table 18 indicates the quantities of sugar consumed annually from continental United States; Hawaii, Porto Rico, and the Virgin Islands; the Philippines and Cuba, on a United States per capita basis, from 1913 to 1930.

During the calendar years 1923–1928, about 80.1 per cent of the quantity of Philippine sugar entering the United States came into customs districts served by Atlantic-coast ports; 17.5 per cent into districts served by Pacific-coast ports; and 2.4 per cent through Gulf-coast ports. For the year 1929 the respective figures are 88.3, 7.9, and 3.8 per cent.

Details of Philippine sugar movement into the United States by customs districts and ports, from 1923 to 1929, are shown in Table 19.

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[8] The Cuban sugar crops were reduced or limited as follows during the periods compared: 1925–26, by 10 per cent; 1926–27, to 4,500,000 long tons; 1927–28, to 4,000,000 long tons; 1930–31, to 3,122,000 long tons. Cuban sugar exports to the United States were restricted to 3,000,000 long tons for the calendar year 1928, and 2,800,000 long tons for the calendar year 1931. For the years 1929 and 1930 there were no restrictions with respect to Cuban sugar production nor with respect to exports of Cuban sugar to the United States, except that the Cuban Export Corporation purposely deflected sugar to countries other than the United States in an effort to raise the price of sugar.

The following table indicates the seasonal movement of Philippine sugar into the United States from 1923 to 1929, showing monthly proportions of quantities imported annually:

Proportions of United States imports of Philippine sugar, by months, 1923–1929

Month	1923–1928 monthly average per cent of annual imports	1929 monthly per cent of annual imports	Month	1923–1928 monthly average per cent of annual imports	1929 monthly per cent of annual imports
January	3.05	2.45	July	12.16	12.70
February	7.43	7.71	August	8.73	11.57
March	11.74	6.30	September	7.10	5.38
April	13.63	18.73	October	4.03	4.31
May	14.00	16.60	November	1.94	2.57
June	14.76	10.31	December	1.43	1.37

Further details of the Philippine sugar movement into the United States by months, computed on the basis of quantities entered, from 1923 to 1929, are shown in Table 20.

The approximate tariff advantage to Philippine sugar imported into the United States is substantially the amount of the tariff rate on Cuban sugar of the same grade. An attempt is made in Table 21 to measure the relative tariff advantage of Philippine sugar shipments to the United States over Cuban sugar from 1919 to 1929 by adopting a common basis of comparable valuation. United States tariff advantages granted to Philippine sugar are also shown in Tables 13 (A) and 16.

Shipments of Philippine Copra and Coconut Oil to the United States, 1909–1929.

The United States is the leading consumer of copra and coconut oil, importing of the world supply about 36 per cent in 1930, and an average of 33 per cent during 1927–1929, measured by quantity in common terms of oil or copra.[9]

In the American market coconut oil as the principal ingredient of oleomargarine indirectly competes with butter, and about seven-eighths of the coconut oil so consumed comes from the Philippines. It is estimated that in 1929 about 25 per cent of the coconut oil consumed in the United States was used in the manufacture of oleomargarine, the remainder going principally into the production of soap, confectionery, and biscuits.

The Philippines now rank first among primary producing countries and colonies in the exportation of coconut oil and copra. No other part or possession of the United States is naturally so situated that it could produce a substantial proportion of the American demand for coconut oil and copra.

Except in 1913, the Philippine area reported as cultivated in coconuts, the primary product yielding copra and coconut oil, increased annually in unbroken progression during the fiscal years 1910 to 1928. The area so cultivated increased from 514,936 acres in the fiscal year 1911, to 1,273,310 acres in 1928—a gain of 758,374 acres or 147 per cent, which compares with a gain in sugarcane acreage during the same interval of 288,217 acres, or 97 per cent. Copra and coconut oil have always been the leading Philippine exports produced

[9] Review of the Oil and Fat Markets, 1930 (London, Faure, Blattman & Co., 1931), pp. 40–42.

from the coconut acreage, the combined export value of shredded coconut and of by-products of coconut oil (copra-oil cake and meal) being small in comparison.

Coconut trees in the Philippines bear from five to seven years after planting. Large immediate expansion in coconut production from one year to another to meet increased export demands for coconut products is therefore not feasible. Comparing several consecutive periods after the inauguration of duty-free trade with the United States,[10] the annual average for the seven (fiscal) year period, 1922–1928, indicates a decided increase in acreage under cultivation but a decrease in yield of coconuts per acre, as compared with the six (fiscal) year periods, 1919–1915 and 1916–1921. The average percentage of increase in acreage much more than offsets the decrease in yield per acre. The greatest relative increase in the average coconut acreage preceded the United States emergency tariff act of 1921, under which a tariff preference first accrued to unrefined Philippine coconut oil, but the increase for 1922–1928 over the preceding period was nevertheless very marked.

The following table illustrates the situation respecting the Philippine area cultivated in coconuts and the yield of coconuts per acre, based on the reported figures for the fiscal years 1910 to 1928 as given in Table 22, which shows also the total number of coconut trees reported bearing for the years 1920–1928:

Philippine area in coconut cultivation, and yield per acre, for stated periods, 1910–1928

Period	Coconut area in cultivation	Increase over preceding period	Yield of coconuts per acre	Decrease compared with preceding period
	Acres	*Per cent*	*Number*	*Per cent*
1910–1915, fiscal years, 6-year average	550,260		1,623	
1916–1921, fiscal years, 6-year average	862,784	56.8	1,449	11
1922–1928, fiscal years, 7-year average	1,176,444	26.7	1,391	4

The increasing importance to the Philippines of copra and coconut-oil shipments to the United States, comparing values over several periods between 1902 and 1929 is shown in the following table:

Value and proportions of Philippine copra and coconut-oil shipments to the United States for stated periods, 1902–1929

Period	Value of Philippine copra and coconut oil shipped to United States (thousands of dollars)	Per cent of total copra and coconut-oil exports shipped to United States	Per cent of total Philippine products represented by copra and coconut oil exported to United States
July 1, 1902–June 30, 1909, 7-year average	94	2.3	0.8
July 1, 1909–Dec. 31, 1914, 5½-year average	1,963	16.8	9.8
Jan. 1, 1915–Dec. 31, 1918, 4-year average	16,380	80.4	30.9
Jan. 1, 1919–Dec. 31, 1922, 4-year average	21,590	67.9	31.3
Jan. 1, 1923–Dec. 31, 1927, 5-year average	32,154	85.4	31.6
1928	40,844	88.7	35.3
1929	[a] 40,341	90.2	32.4

[a] The inclusion of Philippine shredded coconut meat and copra meal and cake shipments to the United States during 1929 would increase this figure to $44,289,000, which compares with $52,161,000 for Philippine sugar shipped to the United States in the same year.

[10] There was no United States tariff preference to unrefined Philippine coconut oil until the emergency tariff act of 1921 was passed; and since American occupation of the Philippines, their copra has not received a tariff preference, because it has been on the general free lists of the United States tariffs.

The following tabulation, showing the increase in the annual average value of all Philippine coconut products shipped to the United States (including copra, coconut oil, shredded coconut meat, and copra-oil meal and cake) with a similar average for sugar, indicates that the gain over the 1909–1914 average was somewhat greater for all coconut products combined during 1923–1927 and in 1928, but was greater for sugar in 1929.

Comparison of increases in shipments of Philippine coconut products and sugar to the United States

Item	Increase over average annual value, 1909–1914		
	1923–1927 (average)	1928	1929
Copra and coconut oil	$30,191,000	$38,881,000	$38,378,000
Copra, coconut oil, shredded coconut meat, and copra meal or cake	32,789,000	42,897,000	42,251,000
Sugar	30,877,000	39,307,000	45,769,000

In value Philippine coconut oil shipments to the United States exceeded copra shipments even before a tariff preference accrued to Philippine coconut oil under the emergency tariff act of 1921; the greatest proportions of oil to copra were shipped during the World-War year 1918 and the years 1919, 1920, 1921, and 1929. Philippine copra has enjoyed no tariff preference in the United States, but has nevertheless established a superior competitive position in the American market as compared with foreign copra, which is likewise admitted duty-free. (See Tables 13 (B) and 13 (D), respectively, for United States importations of Philippine coconut oil and copra from 1910 to 1930.)

The following tabulation indicates, by years, the proportionate value of Philippine coconut oil to the total of Philippine copra and coconut oil combined shipped to the United States from January 1, 1910, to December 31, 1929.

Philippine exports of copra and coconut oil to the United States, 1910–1929

Calendar year	Combined value of copra and coconut oil (thousands of dollars)	Proportion of coconut oil	Calendar year	Combined value of copra and coconut oil (thousands of dollars)	Proportion of coconut oil
		Per cent			*Per cent*
1910 [1]	639		1920	21,874	91.1
1911 [1]	1,378		1921	18,287	76.3
1912 [1]	2,022		1922	22,892	68.3
1913	2,294	47.7	1923	25,365	52.7
1914	4,312	61.9	1924	29,126	64.0
1915	4,565	61.4	1925	31,010	59.4
1916	7,234	51.1	1926	35,742	61.3
1917	17,496	65.0	1927	39,522	61.4
1918	36,288	85.7	1928	40,844	56.9
1919	23,308	98.2	1929	40,341	71.6

[1] No Philippine coconut oil shipped to United States.

The proportion shipped to the United States of total Philippine exports of copra and coconut oil combined to all destinations, expressed either in equivalent quantities of oil or copra, increased from 34.75 per cent (the highest preceding the World War), to an average of about 87 per cent during the five-year period 1924-1928, and to 90.1 per cent in 1929.

Table 23 indicates the quantities and proportions of Philippine copra and oil shipped to the United States from 1899 to 1929, converted to equivalent quantities of oil.

Shipments of Philippine Tobacco Products to the United States, 1909–1929.

In general, Philippine cigars compete with American "nickel" cigars. Their average retail price in the United States is considerably less than the amount of United States import duty nominally waived thereon. American wrapper tobacco and other American products used in the manufacture and packing of cigars are used to a large extent in the manufacture of Philippine cigars coming to the United States, the filler being of native tobacco.

During the calendar years 1910 to 1914, soon following the inauguration of duty-free trade in Philippine cigars shipped to the United States, between 47.4 per cent and 63.3 per cent of the value of all Philippine cigars exported came to the United States. This percentage increased during the period 1923–1928 to about 80 per cent.

In every year from the inauguration of duty-free trade in 1909 until 1927, the average value per thousand of Philippine cigars shipped to the United States was greater than that of cigars shipped to all other countries together, but in 1928 for the first time it was somewhat less. During 1924–1927 the average unit price margin in favor of Philippine cigars shipped to the United States over that of shipments to all other destinations was reduced considerably as compared with earlier years, and in 1928 and 1929 the margin was slightly in favor of cigars shipped to countries other than the United States.

During the four fiscal years 1910 to 1913, 27.7 per cent by value of all cigars and cigarettes entering the United States from all sources came from the Philippines; this proportion increased to 55.9 per cent during the five calendar years 1924 to 1928, and in 1929 and 1930, respectively, was 51.3 and about 54 per cent. Imports of cigarettes into the United States from the Philippines have been of relatively small importance, the trade being in cigars almost exclusively.

Table 24 indicates the annual shipments of Philippine cigars to the United States and the average value per thousand, according to Philippine statistics, from 1899 to 1929.

In spite of the relatively high tariff preference given Philippine leaf and other unmanufactured tobacco products since the inauguration of duty-free trade in 1909, less than 1 per cent by value of total Philippine exports of this character have come to the United States annually, except during the World War years and the years 1919 to 1921 and 1923.

Philippine leaf tobacco has no large market in the United States because of the low cost at which it can be manufactured into cigars in the islands, the low price which these cigars command in the United States, and the unsuitability of the Philippine leaf for blending with domestic filler tobacco.

During the five calendar years 1919–1923, the average annual value of United States imports of filler, leaf, and other unmanufactured tobacco products from the Philippines was about $221,000, increasing to $265,000 during the five calendar years 1924–1928; in 1929 the value was $443,000, and in 1930 it was $528,000. Of the total imports of these tobacco products from all sources (including those from Cuba and the Philippines), less than 1 per cent came from the Philippines, either in 1919–1923 or 1924–1928; in 1929 and in 1930 the percentages were 1 and 1.3, respectively. For detailed figures showing United States imports of Philippine cigars and cigarettes, and of tobacco leaf, filler, and other tobacco products, respectively, see Tables 13 (E) and 13 (N). During the calendar year 1929 the value of United States imports of all Philippine tobacco products was about $3,812,000, as compared with domestic exports of tobacco products to the Philippines amounting to $3,049,000, the value of these exports being equal to about 80 per cent of the value of all tobacco products imported from the islands.

Shipments of Manila Fiber to the United States, 1890–1894, 1899–1929.

Table 25 is a statement of annual shipments of manila fiber (abacá) to the United States. This product was on the general free list of the United States tariffs during the periods covered in the tabulation and so remained under the tariff act of 1930.

PHILIPPINE IMPORTS FROM THE UNITED STATES

Development of Philippine Import Trade from the United States, 1899–1909.

Following American occupation of the islands in 1898 there were no important gains in Philippine commercial imports from the United States (that is, excluding shipments for use of the United States Government itself) until the period following suppression of active revolt in the islands against the United States. This period coincided with that of the Philippine import tariff of 1901.[11] Further gains under the Philippine import tariff of 1905 (1905–1909) were not conspicuous.

Considered in the light of earlier expectations, the growth of Philippine commercial imports from the United States must have been disappointing during the transition period 1899–1909, preceding duty-free trade. The average annual value of such imports during the eight fiscal years 1902–1909, following relative pacification of the islands and preceding mutual duty-free trade, was $4,704,320, the greatest annual amount being $5,761,498, in 1905, and the lowest $3,994,098, in 1903. In the fiscal year 1909, just preceding the establishment of duty-free trade, Philippine commercial imports from the United States were $4,691,770.

It should be recalled in this connection that during this whole 10-year period from 1899 to 1909 Philippine importations of supplies for the Government, both United States and insular, entered the islands free of duty from all sources, regardless of their tariff classification. Only fragmentary information is available as to the value of these Government supplies. In the fiscal year 1908 they amounted to $9,910,000 [12] (including duty-free railway supplies) imported from the

[11] Reenacted by Congress in the act of Mar. 8, 1902.

[12] Hearings on the Philippine tariff bill before the Committee on Ways and Means, 61st Cong., 1st sess., Apr. 20, 1909, p. 20; statement of Col. George R. Colton, insular collector of customs.

United States alone, but probably they were much greater in the first years following the American occupation in 1898. These supplies are not included in Philippine commercial import statistics of the time, but it is reasonable to estimate that the value of these shipments from the United States during the 10-year period 1899–1909 was more than double the value of commercial imports of American goods.

During the seven years from July 1, 1902, to June 30, 1909 (which included about 95 per cent of the period when all dutiable Philippine products enjoyed a 25 per cent tariff reduction in the United States), the annual average value of the principal dutiable products shipped to the United States was about $1,155,000,[13] while an annual average value of about $4,560,000 [14] of dutiable commercial imports from the United States entered the islands without tariff preferences.

In the last five years preceding the inauguration of United States-Philippine duty-free trade, American commercial shipments (as distinguished from duty-free Government supplies) gained in value and entered the islands in substantially increased proportions as compared with the Spanish colonial period. All the European countries which had held leading positions in the Philippine import trade, except Spain itself, made some gains during this period, but the United Kingdom did not maintain its earlier proportion of the trade.

The following table shows the relative positions of the United States and of the European countries which led in the Philippine import trade during 1890–1894, under Spanish sovereignty in the islands, as compared with the 5-year period 1905–1909 immediately preceding the inauguration of mutual duty-free trade.

Value of Philippine import trade from various countries, 1890–1894 and 1905–1909

Country of origin	Calendar years, 1890–1894		Fiscal years, 1905–1909	
	Annual average value of imports	Percentage of total Philippine imports	Annual average value of imports	Percentage of total Philippine imports
United Kingdom	$4,772,108	30	$5,609,746	19
Spain	3,849,618	24	1,693,983	6
Germany	639,895	4	1,636,005	6
United States	[1] 483,164	3	[2] 5,004,401	17
France	268,429	2	857,134	3

[1] Some imports originating in the United States, notably wheat flour, were reported to be of Chinese origin, owing to transshipment at Hong Kong.
[2] Not including United States and Philippine Government supplies, admitted free of duty.

The progress of Philippine imports from the United States of a selected group of commodities competitive with those from other countries, under three different Philippine tariffs during the earlier period of American occupation, preceding duty-free trade relations, is shown in the following tabulation:

[13] About $1,103,000 in raw sugar, $26,000 in hats, and $26,000 in tobacco and tobacco products, annual average.
[14] The total annual average value was about $4,800,000, but $240,000 (or 5 per cent) has been deducted as the estimated amount duty free under the general free lists of the Philippine import tariffs of the time.

Value, percentage, and increase of selected Philippine imports from the United States, during stated periods, 1899–1909

Period	Average annual value from United States [1]	Per cent of total Philippine selected imports [2]	Per cent of increase over preceding period
Jan. 1, 1899–Oct. 31, 1901 (under United States provisional tariff)	[3] $2,568,466	[3] 13.7	----------
Jan. 1, 1902–Apr. 30, 1905 (of the 1901 tariff period)	4,545,620	22.0	77.0
July 1, 1905–June 30, 1909 (of the 1905 tariff period)	4,809,406	22.3	5.8

[1] Excluding coin and bullion of gold or silver, and Government and railway duty-free supplies; also the following articles in the commercial trade of which the United States did not or could not compete: Rice, cattle, coal, fresh and frozen meats, and opium.

[2] Excluding from basis of computation rice, cattle, coal, fresh and frozen meats, and opium.

[3] Somewhat understated, as some American merchandise imported from Hong Kong warehouses, or transshipped at that point to the Philippines, was not reported in Philippine statistics as being of American origin.

The net increase in the annual average of all Philippine importations of this group of commodities from all sources during the four fiscal years 1906–1909 (when the last Philippine import tariff preceding duty-free trade with the United States was in force), as compared with the earlier period of American occupation (January 1, 1899–October 31, 1901, when the provisional Philippine import tariff [15] was in effect), amounted to $4,166,945, of which $2,244,245 (or 54 per cent) was from the United States. Summarized by groups of commodities the increases in commercial importations from the United States were as follows: (1) Cotton and cotton manufactures, $627,031; (2) iron and steel and manufactures thereof, $600,140; (3) mineral oils (chiefly illuminating kerosene), $487,540; (4) leather and leather manufactures, $313,557; (5) wood and wood manufactures, $172,428; (6) meat and dairy products, $130,624; (7) vegetables, $65,698; (8) wheat flour, $43,545; (9) paper and paper manufactures, $6,240; (10) miscellaneous, $524,458. On the other hand, there was a decrease of $727,190 in annual average imports of spirits, malt liquors, and wines from the United States, owing to decreased numbers of American troops in the islands and the smaller consumption of American beer.

Philippine Imports from the United States by Leading Commodities, 1910–1914, 1924–1928, and 1929.

During the 5-year period 1924–1928 the average annual value of Philippine imports from continental United States was $71,321,634, an increase of more than $45,000,000 over the average for the 4½-year period July 1, 1910, to December 31, 1914.[16] The imports from the United States further increased in 1929 to $92,593,000, but fell off to $78,183,000 in 1930. An examination of the detailed statistics shows that these increases over the pre-war period were widely distributed among commodities and groups.

During the period 1924–1928, as shown by annual average values, and during 1929, there were very substantial increases in Philippine imports of nearly all commodity groups from the United States,

[15] Tariff and regulations accompanying Executive order of July 12, 1898, Washington, D. C.

[16] The period July 1, 1910, to Dec. 31, 1914, was selected for this comparison rather than July 1, 1909, because Philippine import statistics for the earlier year do not include considerable amounts of supplies imported by or for the United States Government services. In the period following July 1, 1910, such supplies are included in Philippine import statistics, and comparisons with later periods must necessarily be based upon values which include these items. Under sec. 5 of the United States tariff act of Aug. 5, 1909, and sec. 12 of the Philippine tariff act of the same date, both passed by the United States Congress, all American products (except rice) were made duty free in the islands, conditioned upon direct shipment.

as compared with 1911–1914, although decreases took place or relatively small increases were made, in the following groups: Meat products, wood and manufactures of wood, cereals and cereal products other than wheat flour, raw and prepared coffee, wax, coal, fibers and fiber manufactures, spirits, wines, and liquors, and cement.

Table 26 presents a comparison for 52 groups and items of leading commodities imported into the Philippines from all sources and from continental United States in 1911–1914 and 1924–1928, showing increases or decreases in average annual values for each group of imports, and the proportion of each group of items coming from the United States during each of the periods compared. The items are arranged in the order of values imported from the United States During 1924–1928. Table 26 also presents a statement of values for the same 52 groups and items during 1929, but does not show comparison with other periods.

The following tabulation summarizes briefly the annual values of 30 leading groups of Philippine imports from continental United States during 1924–1928 and 1929 and shows the amount and percentage of increase for each group or item tabulated, comparing 1924–1928 with 1911–1914.

Leading Philippine imports from continental United States, 1924–1928, 1929, and increase 1924–1928 over 1911–1914

[Value in thousands of dollars; i. e., 000 omitted]

Group or item	Imports from the United States			
	Value for year 1929	Average annual value 1924–1928	Increase 1924–1928[1] over 1911–1914[2] (annual averages)	Proportion of total increase in all items[3]
				Per cent
Cotton goods	$15,848	$14,245	$8,706	18.1
Automobiles and motor trucks, and parts of, including tires	7,545	5,049	4,338	9.0
Iron and steel manufactures, except machinery	10,332	7,046	3,768	7.8
Wheat flour	4,348	4,185	3,072	6.4
Machinery and engines	7,448	4,374	2,725	5.7
Dairy products	3,035	2,610	2,439	5.1
Gasoline and naphtha	3,559	2,522	2,318	4.8
Tobacco products	3,151	2,092	1,894	3.9
Electrical machinery, apparatus, and appliances	3,140	1,777	1,724	3.6
Silk goods, including rayon	2,034	1,595	1,487	3.1
Fertilizers	2,131	1,472	1,467	3.0
Fish products, edible	1,898	1,822	1,454	3.0
Kerosene	2,651	2,450	1,351	2.8
Fuel oil	1,204	1,126	1,124	2.3
Chemicals, drugs, dyes, and medicines	1,744	1,489	1,103	2.3
Paper, printed matter	1,170	1,235	968	2.0
Paper, unprinted	1,876	1,316	870	1.8
Fruits and nuts	1,233	894	731	1.5
Lubricating oil	884	787	640	1.3
Soap	941	749	539	1.1
Paints, pigments, and varnishes	795	603	456	.9
Perfumery and all other toilet preparations	522	460	385	.8
Leather and manufactures of	1,723	1,414	361	.7
Vegetables	719	549	348	.7
Rubber and manufactures of, except automobile tires	1,035	593	330	.7
Woolen goods	419	468	320	.7
Hats	304	304	248	.5
Glass and glassware	622	293	219	.5
Earth, clay, and manufactures of	245	150	131	.3
Cacao and manufactures of	192	126	109	.2

[1] Jan. 1, 1924–Dec. 31, 1928.
[2] July 1, 1910–Dec. 31, 1914.
[3] These percentages indicate to what extent each of the items listed was responsible for the total increase in imports from the United States.

Increases in Philippine Imports from the United States, by Leading Commodity Groups, 1923–1929.[a]

In 1929 goods from the United States entering the Philippines were valued at $92,593,000, which was 63 per cent of the total Philippine importations from all sources, amounting to $147,160,000. In some of the major commodity groups the United States supplied well over 80 per cent and even over 90 per cent, and in automobiles, parts, and tires supplied practically the entire Philippine import trade during 1929. It should be noted, however, that although the amounts supplied by the United States were in practically all groups much larger during 1929 than in 1923, the proportion of total Philippine imports supplied by the United States during 1929 was not as great as in 1923 in the case of several of the groups, namely, paper and manufactures; electrical machinery, goods, appliances, and apparatus; edible fish products; chemicals, drugs, dyes, and medicine; fertilizers; railway cars and parts; and perfumery and toilet preparations. There was an actual decrease in 1929, as compared with 1923, only in the imports of woolen manufactures supplied by the United States.

The following tabulation shows the principal Philippine imports from continental United States in 1923 and 1929, by 22 groups arranged in the order of magnitude for 1929, with notations of increases or decreases.

Leading Philippine imports from continental United States, 1923, 1929, and increase over 1923

[Value in thousands of dollars; i. e., 000 omitted]

Group or item	Philippine imports from United States					
	1923	1929	Increase, 1929 over 1923		Per cent of imports from all countries	
					1923	1929
				Per cent		
Total imports from United States	$50,353	$92,593	$42,240	83.9	57.6	62.9
Iron and steel manufactures, including machinery	6,994	17,780	10,786	154.2	80.4	81.2
All cotton and manufactures of	13,596	15,849	2,253	16.6	58.8	58.8
Mineral oil products	4,973	8,402	3,429	69.0	57.2	84.7
Automobiles, parts and tires	2,190	7,546	5,356	244.6	98.8	98.8
Wheat flour	2,807	4,348	1,541	54.9	80.2	85.9
Meat and dairy products	2,048	3,671	1,623	79.2	47.6	53.3
Tobacco products	1,042	3,151	2,109	202.4	88.6	96.3
Electrical machinery goods, appliances, and apparatus	1,020	3,140	2,120	207.8	87.5	81.2
Paper and manufactures	2,372	3,047	675	28.5	77.7	72.1
Fertilizers	544	2,131	1,587	291.7	89.0	74.0
Silk and manufactures, including rayon	687	2,034	1,347	196.1	42.2	43.6
Soap	374	1,941	567	151.6	95.1	96.2
Fish products, edible	1,687	1,898	211	12.5	85.0	79.5
Chemicals,[1] drugs, dyes, and medicines	1,244	1,744	500	40.2	75.5	68.6
Leather and manufactures	770	1,723	953	123.8	90.3	95.6
Fruits and nuts	694	1,234	540	77.8	65.8	72.5
Rubber and manufactures, except automobile tires	398	983	585	147.0	87.1	95.3
Paints, pigments, and varnishes	404	795	391	96.8	74.1	80.0
Vegetables, edible	398	719	321	80.7	28.8	33.2
Railway cars and parts	174	692	518	297.7	86.1	75.1
Perfumery and all toilet preparations	509	522	13	2.6	75.8	58.4
Woolen manufactures	539	414	[2] 125	[2] 23.2	61.8	43.6
Total of 22 groups	45,466	82,764	37,298	82.1	66.6	72.9
All other	4,887	9,829	4,942	101.1	25.4	29.2

[1] Not including fertilizers.
[2] Decrease.

[a] The value of total Philippine imports from the United States during the years ended May 31, was $89,096,000 for 1929, $90,050,000 for 1930, and $59,987,000 for 1931; during the corresponding periods total imports from other sources were $53,082,000, $54,428,000, and $37,294,000, respectively. Thus, compared with the corresponding period of 1928-29, the value of Philippine imports from the United States increased 1.1 per cent for 1929-30, but decreased 32.7 per cent for the year ended May, 1931; while imports from other sources increased 2.5 per cent for the 1930 period, and decreased 29.7 per cent for the year ended May, 1931. (For a similar comparison of Philippine exports during the same periods, see footnote *a*, p. 27.)

Philippine Imports of Cotton Cloth from the United States.

Cotton cloth was the largest single commodity in point of average annual value imported into the Philippines during 1911–1914, 1924–1928, and 1929, considering either the total imports of such cloth from all sources or from the United States. During 1911–1914 cotton cloths imported into the Philippines from the United States averaged $4,506,282 annually, and increased to an average of $11,433,677 in 1924–1928, and to $12,145,472 in 1929, or more than two and one-half times. However, the relative increase in total cotton-cloth importations from countries other than the United States, comparing 1924–1928 with 1911–1914, was somewhat greater than from the United States.

Annual averages of different classes of the principal cotton-cloth importations into the Philippines, by yardage and value during 1911–1914, 1924–1928, and for 1929 are indicated in Table 27.

Philippine Imports of Wheat Flour and Rice—Increased Production of Rice in the Philippines.

The Philippines do not produce wheat flour in appreciable quantities, and American competition in this product in the Philippine market has been principally with Australia and Canada. The Philippine tariff preference to American wheat flour, even under its duty-free entry into the islands, was not as great as the measure of its tariff protection in the American home market, except during the operation of the United States tariff act of 1913, when wheat flour was duty free in the United States under certain conditions. Of wheat flour, which during 1924–1928 had become the largest single foodstuff in point of annual average value imported into the Philippines, the United States supplied about 85 per cent of the total imports as compared with 65 per cent in 1911–1914. Annual average Philippine per capita imports of American wheat flour also increased from 6.88 pounds during the 4½-year period July 1, 1910–December 31, 1914, to 10.33 pounds during the 5-year period 1924–1928 (calendar years) and about 11.3 pounds in 1929. This item was an example of increased Philippine importations from the United States notwithstanding the somewhat diminishing tariff preference resulting from the effect of constant Philippine specific duties on a commodity imported at generally higher unit prices during the period 1924–1928 as compared with 1911–1914.

During 1911–1914 [17] the average annual value of Philippine rice importations was $6,671,518, the largest item of imported foodstuffs in point of value, the United States supplying none. During 1924–1928, total rice importations averaged $4,745,028, and in 1929 were $5,810,013, the United States still not participating in this trade to an important extent. Wheat flour took an almost comparable place in foodstuff imports during this period, with an annual average value of $4,936,202 in 1924–1928, and $5,060,078 in 1929. The lack of American participation in Philippine rice imports is an example of the ineffectiveness of Philippine tariff preference to a United States exports product.

Rice is the principal staple cereal of the Philippine population and is currently the most important single agricultural product of the islands. The value of rough rice (paddy) production for the five

[17] July 1, 1910–Dec. 31, 1914.

years ending June 30, 1928, averaged $95,345,000,[18] which was the equivalent of nearly 90 per cent of the value of Philippine exports of all commodities to the United States during that period. The average annual production of paddy rose from about 212 pounds per capita during the five years ending June 30, 1914,[19] to about 368 pounds during the corresponding period 1924–1928.[20] In spite of this greatly increased production the islands have not been on a net rice exporting basis since the American occupation.[21]

The import rates on rice in the Philippine tariff of 1909 were devised on a revenue-producing basis, with some regard to tariff protection of Philippine growers, and collateral provision for executive suspension of these duties if such action were required by local conditions.[22] The Philippine Legislature, under the congressional act of August 29, 1916, was given authority to enact or change Philippine import rates on non-American products, subject to approval or final veto by the President of the United States. Under this authority the Philippine Legislature in 1922 increased the import rates on husked rice to 68 cents per hundred pounds and also increased the rates on unhusked rice and rice flour, the intention being to give further tariff protection to Philippine rice growers.

Nevertheless the Philippine tariff rates (enacted by Congress) on non-American rice in 1913, when duty-free trade in this cereal from the United States to the islands first became effective,[23] and the increased rates subsequently enacted by the Philippine Legislature, were not sufficiently high to encourage imports from the United States; nor have rates since been fixed at such a point. Since 1913, moreover, the Philippine rates on milled rice, the principal Philippine import of this kind, have not been as high as those of the United States tariff, and consequently the possible tariff preference to American rice in the islands has not been as great as the measure of its protection in the home market.

It is not assured that Filipino consumers would have accustomed themselves to American rice, even if stimulated by a larger Philippine tariff preference to this commodity. Moreover, the average price of American rice exports was usually higher than that of Philippine rice imports.[24] In substance, however, both the Philippine import rates on non-American rice originally enacted by Congress and those subsequently enacted by the Philippine Legislature were fixed at

[18] Statistical Bulletin of the Philippine Islands, No. 11, Table 38.
[19] Computed on the basis of estimated Philippine population for this period, and the total cleaned rice production as reported in Statistical Bulletin of the Philippine Islands, No. 2, Table 16.
[20] Computed on the basis of estimated Philippine population for this period, and the total paddy production as reported in Statistical Bulletin of the Philippine Islands, No. 11, Table 38.
[21] There was in fact an export prohibition respecting rice, which became effective on Aug. 6, 1919, and was removed by the Governor General on Sept. 24, 1930.
[22] Philippine import tariff of 1909, par. 215.
[23] Tariff act of Oct. 3, 1913, Sec. IV, C.
[24] Average United States export and Philippine import prices of rice per pound, 1920–1929.

Year	United States exports, average price per pound	Philippine imports, average price per pound	Year	United States exports, average price per pound	Philippine imports, average price per pound
1920	$0.095	$0.048	1925	$0.060	$0.029
1921	.035	.025	1926	.046	.029
1922	.040	.025	1927	.041	.040
1923	.040	.025	1928	.038	.025
1924	.049	.028	1929	.038	.025

points that encouraged Philippine production and permitted the entry of the necessary import supply into the islands from near-by oriental sources, but did not give the United States sufficient tariff advantage to overcome the combined natural and transport advantages of oriental rice.

Relative Position of the United States and Other Countries in Philippine Import and Export Trade, 1928 and 1929.

During 1929 continental United States supplied 62.92 per cent of Philippine imports and received 75.69 per cent of Philippine exports; far eastern regions relatively near the Philippines supplied 22.27 per cent and received 7.95 per cent, respectively, while European countries supplied 11.89 per cent of the imports and received 14.83 per cent of Philippine exports. These percentages varied but slightly from the year 1928 and indicate broadly that, considering large geographical divisions other than the United States, the largest proportion of Philippine import trade came from relatively near-by oriental points rather than from Europe, but as Philippine export markets these oriental regions were relatively less important than Europe. In 1929 Japan was second to the United States both in supplying Philippine imports and as a market for Philippine exports.

The following tabulation shows percentages of Philippine imports from and exports to the countries and regions leading in Philippine trade during 1928 and 1929.

Proportions of Philippine import and export trade with all countries [1]

Country	1928			1929		
	Philippine imports	Philippine exports	Total Philippine trade	Philippine imports	Philippine exports	Total Philippine trade
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
United States	62.38	74.86	69.17	62.92	75.69	69.67
Total oriental	21.54	8.61	14.51	22.27	7.95	14.92
Japan	9.60	4.50	6.68	8.11	4.34	6.12
China	4.87	2.13	3.47	4.82	1.91	3.30
East Indies:						
Dutch	2.25	.22	1.16	2.15	.19	1.17
British	2.23	.76	1.44	2.44	.67	1.55
French	1.78	.03	.85	3.92	.03	1.97
Japan-China	.49	.02	.24	.62	.01	.31
Hongkong	.26	.87	.59	.12	.71	.41
Siam	.06	.08	.08	.09	.09	.09
Total European	12.91	15.26	14.16	11.89	14.83	13.35
Great Britain and Ireland	4.37	5.09	4.76	4.05	4.29	4.19
Germany	3.43	2.03	2.68	3.30	2.16	2.70
Switzerland	1.23	.01	.58	1.14	.03	.58
France	1.16	1.74	1.47	1.11	1.37	1.24
Belgium	1.08	.90	.99	.86	.63	.74
Spain	.68	3.28	2.08	.62	3.78	2.20
Netherlands	.39	.95	.69	.39	.90	.64
Italy	.32	.99	.65	.23	1.29	.76
Norway	.11	.19	.15	.10	.19	.14
Austria	.08	----------	.04	.04	----------	.04
Denmark	.06	.08	.07	.05	.19	.12
Total all other	3.17	1.27	2.16	2.86	1.41	2.12
Australia	1.80	.40	1.06	1.46	.34	.90
Canada	.30	.14	.21	.19	.18	.18
Hawaii	.30	.23	.26	.39	.21	.29
All other except United States	.77	.50	.63	.82	.68	.75

[1] Annual Reports of the Insular Collector of Customs, Manila, P. I.

United States Exports to the Philippines, by Commodity Groups, 1928, 1929.[25]

During 1930 United States exports to the Philippines increased 0.5 per cent in value over the average of 1923–1928, but decreased 24.1 per cent as compared with 1929. Concurrently United States world exports decreased 17.4 in value, as compared with the average of 1923–1928 and 26.7 per cent as compared with 1929.

In Table 28 a segregation has been made of the value of 109 United States export items and commodity groups shipped to the Philippines during 1928 and 1929, including each item or group amounting to more than $100,000 in 1928, and arranged for convenience of reference in the order of magnitude in that year, with indication of the percentage that each tabulated item and group constitutes of total United States exports to all destinations.

Cotton manufactures comprised the largest group of United States shipments to the Philippines during 1929, with a value of $12,350,754, or 11.10 per cent of total United States exports of this character. Among the items in this group, showing the largest values exported to the Philippines or of which the exports to the Philippines represented the largest percentages of total exports, were the following: Colored and yarn-dyed cotton cloths, $5,773,981, or 11.92 per cent; bleached cotton cloths, $3,574,520, or 33.75 per cent;[26] unbleached cotton cloths, $775,141, or 6.23 per cent; cotton sewing thread, $638,228, or 55.52 per cent.[25]

Iron and steel manufactures, except machinery and vehicles, were the second largest group of exports to the Philippines in 1929, valued at $9,965,316, which was 3.47 per cent of total United States exports of this class. Outstanding individual items in this group were: Iron and steel sheets, galvanized, $2,638,728, or 17.88 per cent; tin plate, terneplate, and taggers tin, $916,509, or 3.21 per cent; welded galvanized pipe, $395,885, or 9.92 per cent; metal furniture and fixtures, $366,524, or 4.17 per cent; barbed wire, $366,524, or 4.17 per cent.

Industrial machinery comprised the third largest group in 1929, valued at $5,458,752, which was 1.97 per cent of total United States exports of this class. Among the larger values or greater percentages of total United States exports represented by individual items in this group were: Sewing machines for domestic use, $906,884, or 16.67 per cent; locomotives, $244,352, or 5.13 per cent; sugarcane mill machinery, $321,595, or 44.63 per cent; other sugar-mill machinery, $860,924, or 23.17 per cent.

Automobiles, motor trucks, busses, and chassis, except electric, comprised the fourth largest group of shipments to the Philippines in 1929, valued at $4,655,392, which was 1.35 per cent of total United States domestic exports of these classes.

Wheat-flour exports to the Philippines in 1929 were valued at $4,523,191 and represented 5.60 per cent of the total exports of flour to all countries, This single item ranked in 1929 above all other items or groups shown in the table except four, and if instead of comparing it with groups it is compared with single items within the groups it ranks second among all, being exceeded only by colored and yarn-dyed cotton cloths.

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[25] The trade figures discussed under this heading represent exports of products of the United States excluding reexports of foreign products.

[26] Presumably a considerable proportion of American bleached cotton cloth and cotton sewing thread shipped to the Phillippines is reshipped to the United States made up into cotton embroideries.

The groups just mentioned and other groups and items comprising about 77 and 75 per cent of United States domestic exports to the Philippines during 1928 and 1929, respectively, are given below, arranged in order of importance according to value during 1928, with percentages showing the proportion of the total export value of each item shipped to the Philippines. Table 28 gives further details for 1928 and 1929, covering 109 groups and items of United States domestic exports to the Philippines, valued in 1928 at more than $100,000 each.

Exports from United States to the Philippines—Major items and groups 1928, 1929 [1]

Commodity group or item	Value, 1928	Per cent of total United States exports	Value, 1929	Per cent of total United States exports
Cotton and cotton manufactures	$13,910,991	12.60	$12,350,754	11.10
Iron and steel manufactures, except machinery and vehicles	8,388,774	3.20	9,965,316	3.47
Industrial machinery	6,157,677	2.72	5,458,752	1.97
Wheat flour	4,557,305	6.17	4,523,191	5.60
Automobiles, motor trucks, busses, and chassis, except electric	4,083,572	1.18	4,655,392	1.35
Gasoline	2,999,896	1.29	2,926,371	1.10
Illuminating oil	2,286,871	2.45	2,539,550	3.03
Cigarettes	1,772,382	8.03	2,291,932	13.72
Evaporated milk and cream, unsweetened	1,575,817	19.94	1,727,689	25.24
Fish, canned	1,540,252	9.55	1,875,562	10.01
Condensed milk and cream, sweetened	1,420,886	22.95	1,429,396	22.13
Paper	1,334,723	4.31	1,786,676	4.80
Fertilizer materials	1,229,321	7.64	2,021,103	9.89
Automobile casings	1,204,620	3.88	1,395,324	4.17
Leather and manufactures	1,051,108	2.75	914,192	3.20
Books and pamphlets	983,620	8.32	1,027,938	7.55
Lubricating oil, red and pale	945,549	1.74	889,241	1.44
Soap	894,595	15.76	951,319	18.38
Canvas shoes with rubber soles	842,698	22.93	1,106,433	22.11
Automobile parts for replacement	670,381	1.11	871,925	1.34
Medicinal preparations	600,534	3.82	677,888	4.14
Gas and fuel oil	589,773	1.29	830,406	2.23
Parts for railway cars, except axles and wheels	481,045	14.28	365,067	6.76
Paints, stains, and enamels	431,052	4.04	429,297	3.69
Phonographs and phonograph records	382,070	3.48	521,586	4.28
Leaf tobacco, except cigar leaf	386,577	.25	15,934	.01
Cigar leaf	348,977	60.78	374,613	37.52

[1] Excluding reexports of foreign products.

United States Exports of Agricultural Products, Manufactures of Agricultural Products, and Other Products to the Philippines, 1910–1914 to 1924–1928; and 1929 [27]

The average annual value of United States primary agricultural products shipped to the Philippines, including raw coffee,[28] during the five calendar years 1924–1928, was $1,548,040,[29] or 2.29 per cent of all United States exports to the Philippines; as compared with 3.19 per cent or $720,902, annual average during the five fiscal years 1910–1914, immediately following the inauguration of duty-free trade with the islands in 1909. For domestic manufactures of agricultural products, including roasted coffee, the annual average during 1924-

[27] The trade figures discussed under this heading do not include reexports of foreign products.

[28] Shipped principally Hawaii.

[29] Among these, the only items valued at more than $5,000, annual average, during 1924–1928, were: Poultry and game, $5,564; apples, green or ripe, $213,748; fresh grapes, $92,224; lemons, limes, oranges, grapefruit, and other subtropical fruits, $251,751; fresh peaches, pears, and other fruits, $9,916; fruit stocks, cuttings, etc., $7,196; nuts, $5,157; dried beans, $15,249; dried peas, $5,671; crude drugs, herbs, and roots, $6,227; onions, $12,136; potatoes, $14,071; other vegetables in natural state, $52,597; hay, $41,514; hops, $7,560; spices, $8,151; tobacco, unmanufactured, $534,228; green coffee, $229,282.

1928 was $28,306,763, or 41.89 per cent of the total, as compared with $9,661,702, or 42.84 per cent during 1910–1914. Although the average annual values of United States primary agricultural products and manufactures of agricultural products combined, shipped to the Philippines, thus increased greatly from 1910–1914 to 1924–1928, their proportion to the total United States export trade with the islands declined slightly from 46.03 per cent to 44.18 per cent.

The values of Philippine agricultural products, including both raw and manufactured, shipped to the United States were, during approximately the same periods compared above, very much greater than the corresponding exports from the United States to the Philippines, and the proportion of these products to total exports was also much greater in the shipments from the Philippines to the United States than in the reverse movement; this fact may be noted from Tables 11 and 12.

United States exports to the Philippines of primary agricultural and manufactures of agricultural products during 1929, practically all benefiting by the tariff preference incidental to duty-free admission of American products, amounted to about $33,395,000. During the same year Philippine exports of primary agricultural and manufactures of agricultural products to the United States and possessions amounted to about $115,101,000.[30] Of this amount, sugar, coconut oil, desiccated coconut, tobacco products, cordage, and hats, entering duty-free, because of Philippine origin, comprised about $90,765,000, or 79 per cent; the remaining $24,336,000, or 21 per cent, was made up of copra, manila fiber, copra meal or cake, and maguey fiber, which enjoyed no tariff preference, because they were on the general free list of the United States tariff.

Table 29 presents a comparison of the exports from the United States to the Philippines, distinguishing agricultural products, manufactures of agricultural products, and eight other leading economic groups, during the five fiscal years 1910–1914, and the six calendar years 1924–1928, and 1929.

A somewhat different segregation of major economic groups of United States exports to the Philippines during the calendar years 1928 and 1929, showing the proportion of each group to all shipments from the United States to the islands, appears in the following table:

United States exports to the Philippines by economic groups, 1928 and 1929 [a]

Commodity group	1928		1929	
	Value	Per cent of total to the Philippines	Value	Per cent of total to the Philippines
Animals and animal products, edible	$5,395,679	6.78	$5,956,153	6.97
Animals and animal products, inedible, except wool and hair	1,660,170	2.09	1,636,806	1.92
Vegetable food products, and beverages	7,379,361	9.26	7,889,111	9.24
Other vegetable products, except fibers and wood	6,016,347	7.55	6,872,054	8.05
Textiles	16,058,558	20.16	14,616,538	17.11
Wood and paper	1,878,097	2.36	2,319,566	2.72
Nonmetallic minerals	7,890,448	9.91	8,432,599	9.87
Metals and manufactures, except machinery and vehicles	9,672,878	12.14	11,407,003	13.35
Machinery and vehicles	14,726,056	18.49	15,544,861	18.20
Chemicals and related products	4,930,534	6.19	6,001,913	7.02
Miscellaneous	4,039,971	5.07	4,737,440	5.55
Total	79,648,099	100.00	85,414,044	100.00

[a] Source: Foreign Commerce and Navigation of the United States.

[30] Excluding embroideries shipped to the United States, which are largely made up of American materials.

Relative Importance of Increases in United States Export Trade to the Philippines and to Selected Countries, 1910–1914 to 1925–1929, and 1930.

During the 5-year period 1910–1914, immediately following the inauguration of duty-free trade between the United States and the Philippines, the average annual value of total United States exports to the Philippines was $22,556,000, or 1.04 per cent of United States world export trade. During the five calendar years 1925–1929 the corresponding figures were $72,785,000, or 1.47 per cent. Compared with the pre-war period 1910–1914, exports to the Philippines during 1925–1929 increased 223 per cent, while total United States exports to all other countries increased 129 per cent in value.[31] Comparable figures for the individual years from July 1, 1909, to December 31, 1929, are shown in Table 30.

In comparing the progress of American exports to the Philippines with those to other specific regions, Java, Madura, the Dutch East Indies, China, and Japan, all relatively near the Philippines, have been selected.

Two widely separated 5-year periods, the five fiscal years 1910–1914 and the five calendar years 1925–1929, have been chosen for this comparison. The first was the period immediately following the inauguration of duty-free entry of American goods into the Philippines, during which the first effects of the preferential tariff treatment were manifested. The last is a period of equal length following long after the initial impetus of the preferential treatment had passed.

Average annual values and percentage increases in American exports to the Philippines and to the other destinations named, are shown in the following table:

United States exports to the Philippines and to selected countries, during stated periods [1]

Destination	Annual average value		Increase 1925–1929 over 1910–1914	Increase over 1910–1914
	1910–1914	1925–1929		
	Thousands	*Thousands*	*Thousands*	*Per cent*
Philippine Islands	$22,556	$72,785	$50,229	223
Java and Madura, Dutch East Indies	3,094	31,787	28,693	927
China	21,151	109,731	88,580	418
Japan	44,020	258,264	214,244	487

[1] The exports here discussed represent exports of products of the United States, excluding reexports of foreign products.

It will be especially noted from the foregoing tabulation that American exports to China, starting in 1910–1914 at a figure not much smaller than the annual average value then shipped to the Philippines, increased $88,580,000, or 418 per cent during 1925–1929, as compared with an increase of $50,229,000, or 223 per cent for the Philippines. The increase of $214,244,000, or 487 per cent, in American shipments to Japan was even greater. The large increase to China and Japan is notable because both are oriental countries, not differing greatly from the Philippines in distance from the United States, and in neither of these countries did American goods receive

[31] During 1930 United States exports to the Philippines increased by 0.5 per cent in value over the average of 1923–1928, but decreased 24.1 per cent as compared with 1929. Concurrently United States world exports decreased 17.4 per cent in relation to the average of 1923–1928 and 26.7 per cent as compared with 1929.

tariff preferences, as they did in the Philippines. Of course, the population of either China or Japan is much larger than that of the Philippines and the per capita import trade of either country from the United States is much smaller.

United States exports for 1925–1929 and 1910–1914, to such oriental markets as the Philippines, Java, Madura, the Dutch East Indies, China, and Japan, considered as a single group of countries, are shown in the following table:

Value and proportions of United States exports to the Philippines and selected oriental countries, during stated periods [1]

Market	Annual average value		Per cent of group	
	1910–1914	1925–1929	1910–1914	1925–1929
	Thousands	*Thousands*		
Philippine Islands	$22,556	$72,785	22.58	15.40
Java and Madura, Dutch East Indies	3,094	31,787	3.09	6.72
China	21,151	109,731	21.17	23.22
Japan	44,020	258,264	44.06	54.66
Total of group	99,911	472,567	100.00	100.00

[1] The exports here compared represent exports of products of the United States, excluding reexports of foreign products.

It thus appears that among the markets enumerated above, over the periods indicated, the relative importance of the Philippines as an outlet for American goods declined 7.2 points, while the importance of Japan increased about 10.6 points, and the others also increased somewhat, by 3.6 and 2 points, respectively.

Philippine Reexportations to Asiatic Points of Imports from the United States 1910–1929.

Expectations that Manila, the principal port in the Philippines, or some other Philippine port might become an entrepôt for American export trade with Asia have not been realized. There was little movement of American goods from Manila to other non-Philippine Asiatic points before reciprocal duty-free trade was established, nor has trade of this character attained more than minor importance under the more favorable conditions attending the duty-free entry of American goods into the islands, except during the World War and the postwar years 1917–1921, when either normal world shipping conditions were disrupted or goods were reshipped possibly to salvage overshipments and cancellations.

From the inauguration of duty-free trade with the islands in 1909 until the earlier World War period, the greatest reported annual value of American goods reexported from the Philippines to foreign Asiatic points was $135,444, in 1915; which was about 0.5 per cent of all Philippine imports from the United States; in 1922, these reexports were $783,414, or 1.6 per cent of all Philippine imports from the United States. For 1929 the corresponding figures were $178,344, or 0.2 per cent. Figures for individual years, from 1910 to 1929, are given in Table 31.

Dutiable Trade between the Philippines and the United States, 1924–1929.

In the provisions of the different acts of Congress establishing duty-free trade between the Philippines and the United States [32] there is no limitation as to the amount of permissible foreign material content in products or manufactures of the United States entitled to duty-free admission into the Philippines, but for articles produced or manufactured in the Philippines and entitled to duty-free admission into the United States the foreign (non-Philippine and non-American) material content is limited to 20 per cent of their value. In addition the duty-free movement of United States and Philippine products in either direction is conditioned upon nonallowance of drawback and direct shipment.[33]

Since the inauguration of duty-free trade from the United States to the Philippines in 1909, there have been importations into the islands from the United States which were subject to duties. These included goods which were dutiable because of allowance of drawback or non-direct shipment, or simply because they were foreign merchandise withdrawn from bonded warehouse and reexported to the Philippines.[34] But the proportions of total Philippine imports from the United States represented by these classes have been small—they ranged from 0.4 to 0.9 per cent during the calendar years 1924–1929. The amounts of duties collected in the Philippines on such importations from the United States can not be ascertained from published Philippine customs statistics.

The following tabulation indicates the reported value of dutiable imports into the Philippines from continental United States during the six calendar years 1924–1929.

Philippine dutiable imports from the United States, 1924–1929 [1]

Year	Value	Per cent of total from continental United States	Year	Value	Per cent of total from continental United States
1924	$395,000	0.7	1928	481,000	.6
1925	331,000	.5	1929	375,391	.4
1926	671,000	.9			
1927	304,000	.4	Average	426,232	.6

[1] Source: Annual reports of the insular collector of customs, Manila, P. I.

Relatively small amounts of Philippine shipments to the United States also have had to pay duty because of not conforming to the conditions as to nonallowance of drawback, direct shipment, maximum permissible foreign natural content, or Philippine origin. The minor importance of this trade is indicated by the following table for goods received from the Philippines upon which duties were levied during the six calendar years 1924–1929.

[32] United States tariff act of Aug. 5, 1909, sec. 5; congressional Philippine tariff act of Aug. 5, 1909, sec. 12; United States tariff act of Oct. 3, 1913, Sec. IV, C; United States tariff acts of Sept. 21, 1922, and June 17, 1930, sec. 301.

[33] Rice was first included in the mutual duty-free provisions under the operation of sec. IV, C of the tariff act of Oct. 3, 1913.

[34] Philippine import statistics do not specify whether or not the reported "dutiable" importations from the United States also include shipments from the United States transshipped to other destinations at Philippine ports.

United States dutiable imports from the Philippines, 1924–1929 [1]

Year	Value	Per cent of total from Philippines	Year	Value	Per cent of total from Philippines
1924	$16,000	0.02	1928	$5,755	0.01
1925	17,000	.02	1929	23,001	.02
1926	7,000	.01			
1927	8,000	.01	Average	12,793	.015

[1] Source: Foreign Commerce and Navigation of the United States.

Duties collected on any goods imported into the United States from the Philippines which may be dutiable because of not conforming to the limitations and conditions mentioned above are still transferred to the insular treasury for the benefit of the Philippine Government as provided in the act of March 8, 1902. The exact amount of import duties thus collected and transferred from the beginning of reciprocal free trade in 1909 can not be ascertained, but probably did not exceed $75,000 to the end of June, 1930.[35]

SHARE OF UNITED STATES PACIFIC, GULF, AND ATLANTIC PORTS IN THE PHILIPPINE TRADE

It is noteworthy that the relative importance of the Atlantic and Pacific ports, respectively, in the trade between the United States and the Philippines has not changed greatly during the period of duty-free trade, nor been very greatly affected by the opening of the Panama Canal for navigation, which took place in August, 1914. The Gulf ports, however, have increased their proportion of the export trade somewhat and of the import trade materially. The proportions of the Atlantic ports in the import trade were somewhat less during 1924–1928 than during 1910–1914, but the earlier percentage was again attained in 1929; their proportion of the export trade to the islands declined somewhat during both 1924–1928 and 1929 as compared with 1910–1914. The percentage of import trade coming from the Philippines through Pacific ports was practically the same in 1924–1928 as in 1910–1914, but decreased considerably in 1929, and their proportion of the export trade to the islands did not vary greatly during any of the periods reviewed.

Further details concerning annual and annual average values and proportions of United States trade from and to the Philippines, by American ports, during the five fiscal years 1910–1914, the five calendar years 1924–1928, and 1929 are shown in Table 32.

[35] Collections of United States import duties and the transfer thereof to the Philippine treasury during the period when 75 per cent of the full United States tariff rates were still collected on Philippine products in accordance with sec. 2 of the act of Mar. 8, 1902, naturally were much larger than they were after the duty-free admission of practically all Philippine shipments was inaugurated Aug. 6, 1909.

PARTICIPATION OF AMERICAN AND FOREIGN VESSELS IN PHILIPPINE OVERSEAS TRADE

The United States coastwise shipping laws were never applied to American trade with the Philippines, although the President was authorized to extend these laws to the islands under section 21 of the Merchant Marine act of June 5, 1920.

The principal significance of this fact is that vessels under foreign flags (that is, flags other than those of the United States or of the Philippines themselves) are permitted to engage in commerce between Philippine ports and between those ports and continental United States and its other possessions, whereas foreign vessels are not permitted to trade between ports of the continental United States or between those ports and Alaska, Hawaii, or Porto Rico.

Based on the total value of Philippine trade carried from and to all non-Philippine points, the average annual share of American vessels in this trade increased from 5.2 per cent during the 4-year (fiscal) period 1909–1912, and 9.4 per cent during the years 1913 and 1914, to 47 per cent during the six years 1923–1928, and to 48.1 per cent, or nearly one-half in 1929. It should be noted that the merchant marine of the United States engaged in foreign trade in general was far larger during the latter period than during the earlier and that the share of American vessels in the foreign trade of the United States with all countries increased materially. Japanese vessels, although to a much smaller degree, also increased their proportion of the trade of the Philippines with other countries, their proportion of the total being 6.4 per cent in 1923–1928 and 8.7 per cent in 1929 as compared with 4.4 per cent in 1909–1912. On the other hand, the share of British vessels, which formerly dominated in this trade, fell from 67.7 per cent in the first period to 32.1 per cent in 1923–1928 and fell still further in 1929. The share of German vessels in the Philippine trade was 7.9 per cent in the earlier period and 3.2 per cent for 1923–1928, but rose somewhat in 1929.

Of the total average annual value of shipping trade in both directions between the Philippines and the United States during the six calendar years 1923–1928 and 1929, respectively, American vessels carried 57.1 and 59.8 per cent; British vessels, 29.5 and 26.4 per cent; Japanese vessels, 5.4 and 7 per cent; Norwegian vessels, 1.6 and 5.8 per cent; while vessels of other nationalities carried smaller proportions.

Further details respecting participation of different flags in Philippine trade during 1909–1912, 1913–1914, 1923–1928, and 1929 are shown in Table 33.

APPENDICES

Appendix A

PHILIPPINE INSULAR GOVERNMENT REVENUES FROM TAXATION AND UNITED STATES REVENUES TRANSFERRED TO THE INSULAR TREASURY

Philippine Insular Government Revenues from Taxation, Including Customs Import Duties, 1903–1929.

No Philippine government revenues accrue to the Treasury of the United States. Increased Philippine importations of duty-exempt American goods after 1909 tended to arrest a possibly greater growth in importations from non-American sources, but they did not actually reduce the average annual values of non-American goods imported into the islands, practically all of which continued to be dutiable; nor was there an actual decline in the amount of insular revenue derived from import duties.[1] In fact the average annual amount of total import duties collected in the islands increased from $6,451,557 (collected on both non-American and American goods) during the three fiscal years 1907–1909, to $6,638,647 (practically all on non-American goods) during the three fiscal years 1911–1913.

Comparing the five fiscal years 1905–1909, preceding duty-free import trade from the United States, with the recent 5-year period 1924–1928, average annual per capita Philippine import duties were $0.764 during the earlier, and $0.726 during the later period; they were $0.82 in 1929, the highest on record. This indicates that receipts of Philippine taxation from import duties in the long run did not keep pace with the growth in Philippine population (except in 1929), and, further, that the importance of such receipts during post-war years, under duty-free trade conditions with the United States, may have been considerably reduced in money of pre-war buying power. Meanwhile the comparative per capita decrease in receipts from Philippine import duties was compensated by increased receipts from other sources of insular taxation in a degree more than sufficient to meet the increment in Philippine population and insure the pre-war equivalent of insular revenues from taxation in buying power.

During the five fiscal years 1905–1909 (preceding duty-free trade from the United States), receipts of the insular government from customs import duties averaged 60 per cent of all revenues from taxation; during 1924–1928 (when duty-free trade with the United States had been long established) this figure dropped to 29.6 per cent, and in 1929 it was 31.1 per cent.

The average trend of Philippine insular government revenue on a per capita basis during 1905–1909, 1919–1923, 1924–1928, and 1929 is indicated in the following tabulation:

Philippine insular government per capita revenue from taxation (annual averages)

Period	From all sources	From import duties		From other taxation	
	Amount	Amount	Per cent of total	Amount	Per cent of total
5 fiscal years 1905–1909 [a]	$1.274	$0.764	60.0	$0.510	40.0
5 calendar years 1919–1923	2.124	.570	26.8	1.554	73.2
5 calendar years 1924–1928	2.452	.726	29.6	1.726	70.4
(1 year) 1929	2.630	.820	31.1	1.810	68.9

[a] Preceding the inauguration of duty-free trade from the United States, Aug. 6, 1909.

[1] See Table 34.

The total and per capita Philippine insular government revenue derived from taxation, by years, from 1903 to 1929, with segregation of customs import duties, is indicated in Table 34.

United States Internal Revenue, Customs, and Tonnage Duties Collected on Imports from the Philippines and Transferred to Treasury of the Philippine Islands.

It was provided in each of the United States tariff acts of August 5, 1909, October 3, 1913, September 21, 1922, and June 17, 1930, "That from and after the passage of this act all [United States] internal revenues collected in or for account of the Philippine Islands shall accrue intact to the general government thereof and be paid into the insular treasury." Under the operation of this provision United States internal revenues collected on Philippine products both in the Philippines and in the United States were paid into the treasury of the islands, amounting to $11,136,016 during the calendar years 1910–1929, inclusive. Collections and transfers of this character amounted to $332,757 in 1929 and averaged $362,354 during the three years 1927–1929.

The annual amounts of United States internal revenue collected on Philippine products shipped to the United States from 1910 to 1929 and transferred to the treasury of the Philippine Islands are indicated in Table 35.

It will be noted from a comparison of Table 35 (United States internal revenue collections on Philippine products shipped to the United States), and Table 24 (Philippine cigar shipments to the United States), that such collections increased or decreased largely in accordance with the movement of Philippine cigars to the United States.

In the act of March 8, 1902, section 4, it was provided among other things that "all duties and taxes collected in the United States upon articles coming from the Philippine Archipelago and upon foreign vessels coming therefrom shall not be covered into the general fund of the Treasury of the United States, but shall be held as a separate fund and paid into the treasury of the Philippine Islands, to be used and expended for the government and benefit of said islands." From the inauguration of duty-free trade with the islands in 1909 to June 30, 1930, collections and transfers of this kind have been about $110,000; they were $6,217 during the year ending June 30, 1930, and averaged $6,740 during the three fiscal years 1928–1930.

The collections and transfers of United States import duties to the Philippine insular treasury under section 2 of the act of March 8, 1902, were much greater before the inauguration of practically complete duty-free trade from the islands on August 6, 1909. The transfer of these collections as revenue to the Philippine insular government gave them substantially the character of export duties levied in the Philippines and such collections and transfers were regarded by American administrators in the islands as an offset, but not complete compensation, for the loss of insular revenues that followed the exemption from Philippine export duties (likewise under the act of March 8, 1902), granted products shipped to the United States which were on the general free list of the United States tariff.

The annual amounts of United States customs duties and tonnage duties on foreign vessels from 1902 to 1930 collected and transferred to the treasury of the Philippine Islands are shown in Table 36.

Appendix B

ANALYSIS OF THE EFFECTS OF TARIFF PREFERENCE FOR AMERICAN PRODUCTS ON THE IMPORT TRADE OF THE PHILIPPINES

Relative Effect of Exemption from Specific Duties as Compared with Exemption from Ad Valorem and Minimum Ad Valorem Duties.[1]

In order to understand better the effects of the tariff preference which the United States has enjoyed in the Philippines since 1909 it is important to distinguish between those goods which are subject to duty at specific rates when imported from countries other than the United States and those goods which are subject to ad valorem or minimum ad valorem rates. Table 37 shows such an analysis, comparing the duty-free imports from the United States under the different categories with the dutiable imports from other countries, and showing the change as between the period 1911–1914 and the period 1922–1926. The significance of the distinction between specific duties and ad valorem duties lies in the fact that the latter (unless modified by new legislation) automatically adapt themselves to changes in prices, whereas the former (unless modified by new legislation) represent varying degrees of protection as prices rise or fall. In fact there has been little such modification in the Philippine import tariffs, either ad valorem or specific, and since prices generally have risen the specific duties after the World War usually represented lower ad valorem equivalents.

It appears that the greatest increase of importations from the United States was in those commodities which are subject to ad valorem or minimum ad valorem rates when imported from other countries. The imports from the United States falling under this category constituted 26.7 per cent of the total imports of the Philippines from all sources during the 4½-year period July 1, 1910, to December 31, 1914, whereas this proportion rose to 36-7 per cent during the 5-year period January 1, 1922, to December 31, 1926. The duty-free imports from the United States of products dutiable at specific rates when imported from other countries also rose relatively to the total imports from all sources but the change was less marked, being from 16.6 per cent of total imports in the earlier period to 20.3 per cent in the later period.

The superior advantage to the United States through exemption from ad valorem duties as compared with the exemption from specific duties is further indicated by the fact that whereas the imports into the Philippines from non-American countries of a selected group of articles subject to specific rates constituted 14.9 per cent of total imports from all sources in the earlier period and 14.5 per cent in the later period, showing little change, on the other hand the imports from non-American countries of all articles subject to ad valorem or

[1] Ad valorem rates of duty in the Philippine tariff are applicable to "the actual market value or wholesale price of * * * merchandise, as bought and sold in usual wholesale quantities, at the time of exportation to the Philippine Islands, in the principal markets of the country whence imported * * *, including the value of all cartons, cases, crates, boxes, sacks, and coverings of any kind, and all other costs, charges, and expenses incident to placing the merchandise in condition, packed ready for shipment to the Philippine Islands."

minimum ad valorem rates of duty fell from 21 per cent of total Philippine imports in the first period to 15.9 per cent in the later group of years.

In making the foregoing comparison concerning non-American importations into the Philippines, rice importations (which were subject to specific tariff rates and which were imported almost entirely from non-American sources) have been disregarded, for the reason that they were the largest single Philippine import item in which the United States did not compete during either of the periods compared. Likewise, tobacco products have not been considered, since the specific rates on these products in the Philippines, from the beginning of reciprocal duty-free trade, have been so high that the preferential effect on imports from the United States resulting from exemption from duty has remained substantially unimpaired by price changes.

Effect of Differences in Levels of Duties on non-American Goods upon Imports of Such Goods Duty Free from the United States.

It might be expected on first thought (a) that Philippine imports from the United States, enjoying freedom from duty, would constitute a larger proportion of total imports of the same commodities in the case of those articles subject to high duties when imported from non-American countries than in the case of those subject to low duties; and (b) that the gain in the share of the United States in total imports, as between the early years of the duty-free arrangement and more recent years, would be greater in the case of those commodities where the duties collectible on imports from other countries have remained stationary or risen, in terms of ad valorem equivalents, than in cases where those equivalents have declined. A detailed examination of the statistics of rates and imports of individual commodities, however, shows that these conclusions are valid only within certain limits.

The increase in the value of the total imports from the United States into the Philippines for the period 1922–1926 as compared with the period 1910–1914 was very great, and large value increases appeared in most individual commodities. In part these increases, however, were due to the advance in price levels, which was marked in the case of most, though not all, of the commodities. It is impossible, of course, to enter into a detailed quantitative comparison of the imports of a large number of individual commodities. In the present discussion, in order as far as possible to eliminate the effect of price changes, the basis of comparison used is that of the share of the United States in the total value of Philippine imports from all sources.

During the period July 1, 1910, to December 31, 1914 (four and one-half years) the United States and its possessions furnished 44 per cent in value of the total imports of the Philippines; the proportion rose to 58 per cent during the 5-year period 1922–1926. The corresponding proportions enjoyed by the United States in the total imports of articles of different categories, as classified according to the rate of duty collectible on them when imported from non-American countries, are shown in Table 38. In compiling that table certain items of Philippine imports have been omitted from consideration in order to obtain closer comparability.

There was practically no change in the Philippine tariff as between the two periods compared. For the most part neither the specific rates nor the ad valorem rates were changed. Owing to the change in prices, however, the specific rates on many commodities represented different and usually lower ad valorem equivalents in the later period than in the earlier. In Table 38 the commodities have been grouped in such a way as to bring together, on the one hand, those in which there has been little change or even a slight increase in the ad valorem or ad valorem equivalents and, on the other hand, those in which there was a decrease.

Groups A and B in the table represent commodities in which the imports from the United States became a larger share of such imports from all countries between 1910–1914 and 1922–1926, while Groups C and D cover those in which that share fell off.

From an inspection of Table 38 it appears that the position of the United States in the import trade of the Philippines advanced most conspicuously in the case of commodities in Group A. In this group the average ad valorem rates or ad valorem equivalents of the duties applicable to imports from non-American countries remained substantially the same or even in some cases increased slightly between 1910–1914 and 1922–1926. In the first period imports of this group from the United States represented 18.4 per cent of total imports of all commodities from all countries, whereas this proportion rose in the later period to 28.8 per cent. It is noteworthy, however, that the United States also increased very conspicuously its share of the total imports of the Philippines from all countries in the case of the large number of articles classed under Group B, on which the duties applicable to imports from other countries were lower (in terms of ad valorem equivalents) in the later period than in the earlier; the imports of these commodities from the United States constituted 12.9 per cent of total imports from all countries in 1910–1914, but rose to 18.9 per cent in 1922–1926.

Group C embraces articles on which, as in Group A, the duties applicable to imports from other countries show little change in terms of ad valorem equivalents between the earlier period and the later, and of which the imports from the United States constituted a smaller proportion of total imports in the later than in the earlier period.[2] Since this group is much smaller than Group A, it appears that in the case of most of the commodities on which the ad valorem equivalents remained stable the United States made marked gains. The imports of Group C from the United States constituted 5.6 per cent of total imports of all commodities from all countries in the pre-war period and 4.6 per cent in the postwar period.

Group D is similar to Group B in that it comprises commodities on which Philippine duties, from which the United States is exempted, were lower in terms of ad valorem equivalents after than before the war (principally by reason of increases in prices on articles bearing

[2] The increased importance of Range (9) of this group shown in Table 38, in relation to the share of total trade represented thereby in 1922–1926 might appear to be at variance with the decreased proportions of commodities in this group supplied by the United States. It is explained, however, largely through the failure of the United States to supply the same percentage of gasoline imports in 1922–1926 as in the earlier period, the share decreasing from 86 per cent to 70 per cent, although gasoline during 1922–1926 had become a considerably more important item among Philippine imports.

specific duties), but of which the imports from the United States declined relatively to those from other countries. This Group D in turn is much smaller than Group B; in other words, in the case of much the greater proportion of the commodities in which the preference enjoyed by the United States declined, the United States was nevertheless able to gain a larger share of the total import trade of the Philippines. Imports of Group D from the United States represented 6.5 per cent of total imports of all commodities from all countries in the pre-war period as compared with 4.8 per cent for 1922–1926.

Turning from a consideration of the group totals of Table 38 to the detailed entries classified according to the rates of duty applicable on non-American goods, it will be seen that, contrary to what might perhaps have been expected, the relative gain in the position of the United States in the import trade of the Philippines was not least in the commodities having the lowest rates of duty nor greatest in those having the highest rates. Range (1) represents the commodities with the lowest rates of duty, ranging from 5 to 10.2 per cent ad valorem (or ad valorem equivalent) during 1910–1914 and from 5 to 8.5 per cent in 1922–1926. This range falls under Group A and there is no corresponding range under Groups C and D, (in which the United States lost position relatively). Although the total imports of commodities of of Range (1) are small, it is perhaps significant that whereas the United States supplied only 17 per cent of the total imports of this group in the pre-war period it supplied 55 per cent of them from 1922 to 1926.

By summarizing the four groups, A, B, C, and D, of Table 38 according to the ad valorem or ad valorem equivalent ranges of the duties applicable to corresponding non-American goods during 1922–1926, it appears that the net American gain in relative importance among total Philippine imports was from 43.4 per cent in 1910–1914 to 57.1 per cent in 1922–1926, and that the principal advances were made in what may be termed the intermediate ranges of ad valorem or ad valorem equivalent rates. The greatest net American gain, from 32.8 per cent in 1910–1914 to 44.3 per cent in 1922–1926, occurred in the eight ranges (2), (3), (6), (7), (9), (10), (13), and (14), with ad valorem rates and equivalents running from 10 to 25.3 per cent in 1922–1926; the next greatest net gain, from 5.3 per cent in 1910–1914 to 7.5 per cent in 1922–1926, is found in ranges (1), (5), and (12) at ad valorem rates and equivalents ranging from 5 to 9.7 per cent in 1922–1926. In ranges (4), (8), (11), and (15), which include the highest rates of duty (in terms of ad valorem and ad valorem equivalents) applicable in 1922–1926 to corresponding non-American goods entering the Philippines, there was no net change in the relation of American goods to total Philippine imports, this percentage remaining at 5.3 both during 1910–1914 and 1922–1926.

The following tabulation, condensed from Table 38, illustrates the summary made in the preceding paragraph.

Variations in United States share of selected Philippine imports within different ranges of tariff preference during stated periods

	Percentage supplied by United States of total imports of the given group		Per cent which imports of the given group from United States formed of imports of all commodities from all countries	
	1910–1914	1922–1926	1910–1914	1922–1926
Lower ranges of duty (minimum United States preferences 1922–1926):				
Ranges in which United States share has—				
Increased (1), (5)	46.4	71.3	4.7	7.3
Decreased (12)	49.9	19.3	.6	.2
Total	46.8	66.1	5.3	7.5
Intermediate ranges of duty (United States preferences 1922–1926):				
Ranges in which United States share has—				
Increased (2), (3), (6), (7)	43.8	67.8	24.1	35.9
Decreased (9), (10), (13), (14)	60.8	47.8	8.7	8.4
Total	47.3	62.8	32.8	44.3
Higher ranges of duty (maximum United States preferences 1922–1926):				
Ranges in which United States share has—				
Increased (4), (8)	31.5	50.7	2.5	4.5
Decreased (11), (15)	72.2	46.4	2.8	.8
Total	45.1	50.0	5.3	5.3
All commodities	47.0	61.7	43.4	57.1

Movement of 223 Commodities and Commodity Groups in Philippine Import Trade from the United States and Possessions according to Tariff Preferences, 1911–1914 to 1922–1926 (Table 39).

It will be understood that a narrative discussion of the whole Philippine import-trade movement by commodities and according to the tariff preference accorded different commodities coming from the United States, over the long period July 1, 1910, to December 31, 1926, is not practicable within the limitations of this summary, and on these points reference is therefore made to the details of Table 39, pages 132 to 136.

A tabular analysis is presented in Table 39 of all imports from the United States into the Philippines, by individual commodities and somewhat narrowed commodity groups, during the consecutive period, July 1, 1910, to December 31, 1926. The table is arranged alphabetically, based as far as possible on the original Philippine statistical nomenclature, and gives average annual Philippine import values from all sources and from the United States and possessions by commodity items or restricted groups, with indication of the corresponding proportions entered from the United States and possessions and the tariff rates applying to them when imported from other countries (in terms of ad valorem or ad valorem equivalents). Unless otherwise indicated annual averages are shown for the 4½-year period, July 1, 1910, to December 31, 1914, which embraces substantially the pre-war period of United States-Philippine free-trade relations (except the initial months August 6, 1909, to June 30, 1910);[3] the four calendar years 1915–1918, which include most of the World War period; the three calendar years 1919–1921, first following the World War; and the five calendar years 1922–1926, which may be taken to follow the first postwar readjustment period.

[3] The short period, Aug. 6, 1909, to June 30, 1910, first following the inauguration of duty-free trade has been omitted in constructing Table 39, because imports of Government supplies are not included in Philippine import statistics for that period, while they are included in the subsequent years.

Appendix C

AMERICAN INVESTMENTS IN THE PHILIPPINES

An exact statement of American investments in the Philippines can not be made, but estimates thereof are quoted below from various official sources.

The difficulty of determining the amount of American investments in the islands was stated in 1926 by the Chief of the Bureau of Insular Affairs, War Department, as follows:

FOREIGN INVESTMENTS [1]

It is at once recognized that it is impossible to state more than approximately the foreign investments in the Philippine Islands. The same difficulties exist there as elsewhere in securing information of this character. Some of the larger properties of foreign ownership are corporate with bonded indebtedness. The owners of the stock would be classed as the owners of the property, whereas the real investors are, in many cases, the holders of the bonds and are widely distributed, being frequently of a nationality other than that of the stockholders. Likewise, there is against many private parties a large indebtedness, the creditors being of a different nationality from the owners.

In response to a request from the bureau, it was officially reported in 1924 that the ownership of real property in the Philippine Islands, as determined from tax assessments, was as follows:

Filipinos	$697, 000, 000
Chinese	26, 000, 000
Americans	29, 000, 000
Spaniards	29, 000, 000
"Other foreigners"	11, 000, 000

The largest American investor in the Philippine Islands is, of course, the United States Government and is not included in this tabulation. Omitting the investments of the Government, the total value of American investments in the Philippine Islands is estimated to be $111,000,000. The largest item is the investment in the bonds of the Philippine government by the American public, and the next item would be the investment by the American public in the bonds, of the public utilities in the islands.

Against the bonds of the government, Provinces, and municipalities so held in the United States on June 30, 1926, amounting to $67,623,000, there might be set up the cash balances of the Philippine government in the United States on that date, amounting to $54,400,000. These balances are largely the reserves protecting the monetary circulation in the islands and have the effect, when analyzed, of converting the foreign debt of the government into a floating interior debt.

It would be a grave error to suppose that the American investments in the islands are constituted largely of American capital sent to the islands for investment purposes. Very largely the holdings of Americans in the islands, except sugar centrals and public utilities, are the result of small investments of former Philippine and American Government officials and employees who have prospered with their business in the islands. Likewise, since American occupation the foreign investments in the islands have not increased by capital from foreign sources, but have increased in value due to the prosperity of the investments. The Spanish, British, and particularly Chinese investors have prospered very largely as a result of the benefits of the American Government.

[1] From Annual Report of the Chief of the Bureau of Insular Affairs, 1926, p. 8.

In 1928 the following estimate of investments by Americans and others in Philippine securities and industries was made by the director of the bureau of commerce and industry, Manila:

Certain principal investments of Americans, Filipinos, and others in the Philippine Islands [1]

[In thousands of dollars; i. e., 000 omitted]

	American investments	Filipino investments	Other investments
Security holdings: [2]			
Insular government bonds	$64,103	----------	----------
Provincial and municipal bonds	10,213	----------	----------
Total government bonds	74,316	----------	----------
Railroad and utility bonds and stocks:			
Manila Railway Co. bonds	27,302	----------	----------
Philippine Railway Co. bonds and stocks	13,369	----------	----------
Manila Electric Co. bonds and stocks	7,550	----------	----------
Total railroad and utility bonds and stocks	48,221	----------	----------
Total security holdings	122,537	----------	----------
Certain industrial investments:			
Rice mills (cost of buildings and mills only)	15	$5,100	$2,385
Sugar centrals (capital and equipment)	24,038	40,280	20,820
Sugar refineries	210	None.	None.
Hemp-baling presses	----------	----------	[3] 1,789
Cigar, cigarette, etc., factories	----------	----------	[4] 15,000
Bakeries and confectioneries	----------	----------	[5] 1,050
Coconut-oil factories	[6] 2,750	825	1,925
Rope factories	175	40	775
Embroidery factories	7,000	500	None.
Total investments shown above	156,725	46,745	43,744

[1] Letter of Sept. 5, 1928, from the director, bureau of commerce and industry, Manila, P. I., to the Governor General's office.

[2] American security holdings only; figures for other nationals not available.

[3] Present investments not available; 1918 census gives ₱3,578,000 ($1,789,000) as the total investment. There are 89 hemp-baling presses. Investors in their order of impotance are: First, Chinese; second, English; third, American; and fourth, Filipino.

[4] A conservative estimate of capital invested in these different factories is placed at around ₱30,000,000 ($15,000,000). There are 90 cigar factories and 29 cigarette factories. Investors in the order of their importance are: Spanish, 50 per cent; German, 20 per cent; and Filipino, Chinese, and American, 30 per cent.

[5] Present investments not ascertainable; 1918 census gives ₱2,100,000 ($1,050,000) as the total investment. Principal investors in order of importance are: Filipino, Chinese, Spanish, and American.

[6] A letter from the Acting Governor General of the Philippine Islands of Feb. 10, 1928, to the Bureau of Insular Affairs, War Department, stated the total capitalization of the coconut-oil industry as $6,185,000, of which $5,600,000 is owned by 4 American firms, or 90½ per cent of total capitalization.

An estimate in 1930 by the trade commissioner of the United States Department of Commerce in Manila placed American investments in the Philippines, other than those of the United States Government, at about $200,000,000, distributed as follows:

American investments in the Philippines [1]

[In thousands of dollars; i. e., 000 omitted]

Manufacturing industries	$8,732	Building and loan associations	$439
Public utilities:		Moving-picture theaters	135
Transportation [2] (garages and bus lines)	1,634	Engineering, contracting, stevedoring, newspapers, hotels	3,115
Illuminating gas	4,735	Lumbering and sawmills	6,000
Telephones	2,220	Sugar centrals	30,000
Radio and telegraph	298	Sugar refineries	210
Electric-light plant	19,347	Religious organizations	893
Ice plants	39	Philippine government bonds	65,472
Merchandising enterprises	38,383	Philippine Railway Co. bonds	7,384
Business enterprises: Real estate (including plantations, subdivisions, etc.)	7,399	Manila Railway Co. bonds	953
Banks	502	Total	197,890

[1] From report of C. C. Howard, trade commissioner, U. S. Dept. of Commerce, Manila, P. I., Mar. 7, 1930.

[2] Laundries were included in the total of $1,634,000.

The nationality of the ownership and investments in Philippine sugar lands and sugar centrals was given in 1929 by Mr. Stimson, Secretary of State, as follows:[2]

	Area in hectares	Per cent
Land devoted to sugarcane in the Philippines, showing cultivators:		
Filipinos	174,053	87
Spaniards	14,785	7
Americans and other nationalities	11,963	6
Total	200,801	100

The total investments in the Philippine sugar industry, aggregating $190,000,000, distributed as to the character of the investments, and the nationality of the owner of the sugar lands are as follows:

Investments in centrals	$82,500,000
Landed investments	90,000,000
Crop loans	12,500,000
Miscellaneous investments	5,000,000
	190,000,000
The land ownership is as follows:	
Filipino	73,800,000
Spanish	9,900,000
American and others	6,300,000
	90,000,000
The ownership of the centrals is as follows:	
Filipino	40,250,000
American	21,500,000
Spanish	20,250,000
Other nationalities	500,000
	82,500,000

A comparison of American direct investments in various foreign countries in different parts of the world, with such investments in the Philippines, appears below:

[2] Hearings on H. R. 2667 before the Committee on Ways and Means, 70th Cong., 2d sess., Vol. XVII, p. 10643, statement of Hon. Henry L. Stimson, former Governor General of the Philippine Islands.

American direct investments in various foreign countries [1]

[Values in thousands of dollars; i. e., 000 omitted]

Asia:	
Philippine Islands	$79,935
China	113,754
Japan	60,700
Netherland East Indies	66,012
Latin America:	
Cuba and other West Indies—	
Cuba	918,957
Dominican Republic	69,322
Haiti	14,191
Jamaica	21,941
All other West Indies	29,340
Mexico and Central America—	
Mexico	682,536
Costa Rica	22,166
Guatemala	69,979
Honduras	71,485
Latin America—Continued.	
Nicaragua	$13,002
Panama	28,459
Salvador	29,466
South America—	
Argentina	331,819
Bolivia	61,619
Brazil	193,606
Chile	422,593
Columbia	123,994
Ecuador	11,777
Guianas	5,688
Paraguay	12,615
Peru	123,712
Uruguay	27,904
Venezuela	232,538

[1] From American Direct Investments in Foreign Countries, Trade Information Bulletin No. 731, November, 1930, U. S. Dept. of Commerce, Bureau of Foreign and Domestic Commerce. In connection with these figures the Bureau of Foreign and Domestic Commerce states:

"Foreign 'direct investments,' as herein considered, include those commercial and industrial properties situated abroad and belonging to residents of the United States and its Territories, from which a return is normally expected. They are called 'direct investments' to distinguish them from 'portfolio investments' acquired through the purchase of foreign securities publicly offered and through the international securities movement; by definition, therefore, pure 'interest capital' and capital that moves incidental to a migration of labor are in large part excluded. Investments of the 'portfolio' type are included when they are a part of the holding of American commercial and industrial corporations. Pure 'interest capital' is included when invested in American-controlled corporations operating abroad."

Appendix D.—Statistical tables

TABLE 1.—*Principal changes in United States tariff rates on important products which are duty free when from the Philippines*

Commodity	Tariff act of 1930	Tariff act of 1922	Emergency tariff act of 1921	Tariff act of 1913	Tariff act of 1909
Sugar, preferential rate to 96° centrifugal Cuban sugar	2¢ per lb	1.7648¢ per lb	1.60¢ per lb	1.0048¢ per lb.[1]	1.348¢ per lb.
Coconut oil, not refined and deodorized [2]	2¢ per lb	2¢ per lb	20¢ per gal. (about 2.67¢ per lb.)	Duty free, regardless of origin.	Duty free, regardless of origin.
Shredded coconut meat (desiccated coconut)	3½¢ per lb	3½¢ per lb	No change from act of 1913.	2¢ per lb	2¢ per lb.
Coconuts	½¢ each	½¢ each	do	Duty free, regardless of origin.	Duty free, regardless of origin.
Copra-oil cake	3/10¢ per lb	Duty free, regardless of origin.	Duty free, regardless of origin.	do	Do.
Copra-oil cake meal	3/10¢ per lb	do	No change from act of 1913.	15% ad val	20% ad val.
Tobacco—wrapper and filler, when mixed with more than 35 per cent (15 per cent in acts of 1909, 1913, and emergency act, 1921) of wrapper tobacco: [3]					
Unstemmed	$2.27½ per lb	$2.10 per lb	$2.35 per lb	$1.85 per lb	$1.85 per lb.
Stemmed	$2.92½ per lb	$2.75 per lb	$3.00 per lb	$2.50 per lb	$2.50 per lb.
Pineapples, prepared or preserved, n. s. p. f	2¢ per lb	2¢ per lb	No change from act of 1913.	20% ad val. or 1¢ per lb.	25% and 35% ad val.
Pearl or shell buttons	1¾¢ per line, per gross, plus 25% ad val.	1¾¢ per line, per gross, plus 25% ad val.	do	25% and 45% ad val	1½¢ per line, per gross, plus 15% ad val.
Hats of straw, etc	25% ad val., 2½2¢ ea. + 25% ad val.; 29½6¢ ea. + 50% ad val.; 33⅓¢ ea. + 60% ad val. [5]	25%, 35%, 40%, 50%, and 60% ad val. [4]	do	25%, 40%, and 50% ad val.	35%, 50%, and 60% ad val.
Cotton embroideries	90% ad val	75% ad val	([6])	60% ad val	60% ad val.
Manila fiber cordage	2¢ per lb.; and 2¢ per lb. + 15% ad val.	¾¢ per lb	No change from act of 1913.	½¢ per lb	¾¢ per lb.

[1] Effective Mar. 1, 1914.

[2] Refined and deodorized coconut oil was dutiable at 3½ cents per pound under the acts of 1909 and 1913; under the acts of 1921, 1922, and 1930, the rates indicated in the table apply to all coconut oil.

[3] The rates of duty on the classes of tobacco principally imported from the Philippines into the United States, namely, filler tobacco, remained 35 per cent and 50 per cent ad valorem under the tariff acts of 1909, 1913, 1922, and 1930.

[4] Increased to 88 per cent ad valorem on certain sewed hats, by presidential proclamation, effective Mar. 14, 1926. The rates, and hence the tariff preference to hats of the classes most generally shipped from the Philippines to the United States, were not increased under the tariff act of 1922.

[5] Reduced to 25 cents each plus 50 per cent ad valorem, by presidential proclamation, effective Mar. 7, 1931.

[6] Articles of embroidery composed in chief value of cotton of 1⅜ inches or longer, 7 cents per pound plus 60 per cent ad valorem; composed in chief value of cotton staple shorter than 1⅜ inches, 60 per cent ad valorem.

TABLE 2.—*Philippine export duties per hundred pounds gross weight,[1] from date of American occupation to October 3, 1913*

	United States provisional customs tariff and regulations, and General Order 49, office of military governor, Nov. 10, 1898	Philippine Commission (act 230), act of Sept. 17, 1901[2] (United States act of Mar. 8, 1902)	United States act of Mar. 3, 1905	United States act of Feb. 26, 1906	United States act of Aug. 5, 1909[3]
	Cents per 100 lbs.	*Cents per 100 lbs.*	*Cents per 100 lbs.*	*Cents per 100 lbs.*	*Cents per 100 lbs.*
Abacá, raw or wrought hemp (manila fiber)	17.01	34.02	34.02	34.02	34.02
Indigo (free of export duties, Oct. 5, 1909)	11.34	11.34	11.34	11.34	Free.
Indigo employed for dyeing ("tintarron") (free of export duties, Oct. 5, 1909)	.11	.11	.11	.11	Free.
Rice (free of export duties, May 3, 1905)	45.36	45.36	Free.	Free.	Free.
Sugar	2.27	2.27	2.27	2.27	2.27
Coconuts, fresh, and dried (copra)	2.27	4.54	----------	----------	----------
Copra, fresh or dried, May 3, 1905	----------	----------	4.54	4.54	----------
Copra, Oct. 5, 1909	----------	----------	----------	----------	4.54
Tobacco, manufactured, of all kinds and of whatever origin	68.04	68.04	68.04	68.04	
Tobacco, manufactured or unmanufactured, except as otherwise provided, Oct. 5, 1909	----------	----------	----------	----------	
Tobacco, raw, grown in the Provinces of Cagayan, Isabela, and New Biscay, Island of Luzon	68.04	68.04	68.04	68.04	58.97
Tobacco, raw grown in the islands of Visayas and Mindanao	45.36	45.36	45.36	45.36	
Tobacco, raw, grown in other Provinces of the archipelago	34.02	34.02	34.02	34.02	
Tobacco, stems, clippings, and other wastes of tobacco, Oct. 5, 1909	----------	----------	----------	----------	27.68

[1] Duties were actually levied per hundred kilos, at 2.2046 times the rates indicated.

[2] Reenacted by act of Congress Mar. 8, 1902. From Mar. 9, 1902, to Aug. 5, 1909, export duties collected in the Philippines on exports to the United States that were dutiable therein were deducted from duties collected in United States. Export duties levied in Philippines on Philippine exports to United States, if free of duty under United States tariff, were refunded.

[3] Export duties on Philippine exports direct to United States were abolished, as of Aug. 6, 1909, and all export duties on shipments to any country were abolished as of Oct. 4, 1913.

TABLE 3.—*Average price per metric ton of manila fiber shipments at Philippine shipping points, calendar years 1899–1913* [1]

Year	Average price of shipments to all destinations	Variation as compared with weighted average price of shipments to all destinations Jan. 1, 1899, to Oct. 31, 1901	Average price of direct shipments to United States	Average price of shipments to non-American destinations	Difference in price between direct shipments to United States and shipments to non-American destinations	Average price of shipments to United States less export duties remitted	Difference in price between direct shipments to United States less export duties and shipments to non-American destinations
Calendar, 1890–1894	$99.48	----------	$88.07	$104.33	−$16.26	----------	----------
Calendar, 1899	113.94	----------	111.12	115.73	−4.61	----------	----------
Calendar, 1900	146.26	----------	135.57	149.40	−13.83	----------	----------
10 months, January–October, 1901	125.85	----------	131.02	124.36	+6.66	----------	----------
Average, Jan. 1, 1899–Oct. 31, 1901	144.82	----------	----------	----------	----------	----------	----------
3 months, December, 1901–February, 1902	139.33	----------	154.46	126.11	+28.35	----------	----------
9 months, April–December, 1902 [2]	176.64	+$31.82	185.08	165.22	+19.86	$177.58	+$12.36
Calendar, 1903	157.23	+12.41	165.59	148.57	+17.02	158.09	+9.52
Calendar, 1904	169.47	+24.65	177.08	162.21	+14.87	169.58	+7.37
Calendar, 1905	166.80	+21.98	173.45	158.02	+15.43	165.95	+7.93
Calendar, 1906	188.44	+43.62	196.56	178.72	+17.84	189.06	+10.34
Calendar, 1907	167.94	+23.12	177.53	159.40	+18.13	170.03	+10.63
Calendar, 1908	125.60	−19.22	127.19	124.23	+2.96	119.69	−4.54
Calendar, 1909	100.60	−44.22	102.71	97.29	+5.42	95.21	−2.08
Calendar, 1910	100.96	−43.86	111.18	92.17	+19.01	103.68	+11.51
Calendar, 1911	97.74	−47.08	106.45	91.19	+15.26	98.95	+7.76
Calendar, 1912	126.05	−18.77	141.82	113.96	+27.86	134.32	+20.36
Calendar, 1913 [3]	176.27	+31.45	207.60	155.95	+51.65	200.10	(2)

[1] Annual reports of the Insular Collector of Customs, Manila, P. I.
[2] Export duties on shipments to United States abolished, act of Mar. 8, 1902.
[3] All Philippine export duties abolished, act of Oct. 3, 1913.

NOTE.—The Philippine export duty on manila fiber from and after Nov. 15, 1901, was equivalent to $7.50 per metric ton, the amount refunded or remitted on shipments thereof to the United States under the act of Mar. 8, 1902, being identical until all Philippine export duties were abolished under the act of Oct. 3, 1913.

TABLE 4.—*Philippine trade (general imports and exports, excluding gold and silver ore, bullion, and coin) and commodity trade balances, January 1, 1899 [1]–December 31, 1930*

[In thousands of dollars; i. e., 000 omitted]

Year ending—annual and annual average value and grand total	With continental United States					With Hawaii, Guam, and Porto Rico		With countries other than continental United States and possessions					With all countries		
	Philippine imports from the United States	Percentage of total Philippine imports	Percentage of total Philippine exports	Philippine exports to the United States	Balance in favor of (+) or against (−) the Philippines	Philippine imports from Hawaii, Guam, and Porto Rico	Philippine exports to Hawaii, Guam, and Porto Rico	Philippine imports from countries other than the United States	Percentage of total Philippine imports	Percentage of total Philippine exports	Philippine exports to countries other than the United States	Balance in favor of (+) or against (−) the Philippines	Philippine imports from all countries	Philippine exports to all countries	Balance in favor of (+) or against (−) the Philippines
Dec. 31, 1899	$1,353	7	27	$3,935	+$2,582	----	----	$17,840	93	73	$10,912	−$6,929	$19,193	$14,847	−$4,346
Dec. 31, 1900	2,153	9	13	2,961	+808	----	4	22,711	91	87	20,025	−2,686	24,864	22,990	−1,874
Dec. 31, 1901	3,534	12	19	4,546	+1,012	1	6	26,627	88	81	19,951	−6,676	30,162	24,503	−5,659
Annual average, 1899–1901, Jan. 1–Dec. 31 (3 years) [2]	[3] 2,347	9	18	[4] 3,814	+1,467	----	3	[3] 22,393	91	82	[4] 16,963	−5,430	24,740	20,780	−3,960
Dec. 31, 1902	4,153	12	40	11,476	+7,323	1	6	29,188	88	82	17,190	−11,998	33,342	28,672	−4,670
Dec. 31, 1903	3,837	11	40	13,071	+9,234	----	5	29,974	89	60	19,321	−10,653	33,811	32,397	−1,414
Dec. 31, 1904	5,099	17	40	11,655	+6,556	----	3	24,479	83	60	17,492	−6,987	29,578	29,150	−428
(Jan. 1–Apr. 30), 1905	2,074	19	54	5,893	+3,819	----	(5)	8,889	81	46	5,109	−3,780	10,963	11,002	+39
Annual average, 1902–1905, Jan. 1–Apr. 30 (3 years 4 months)	[6] 4,549	14	42	12,629	+8,080	----	4	27,759	86	58	17,735	−10,024	32,308	30,366	−1,942
(May 1–June 30), 1905	1,267	21	45	2,785	+1,518	----	1	4,643	79	55	3,472	−1,171	5,910	6,258	+348
June 30, 1906	4,334	17	36	11,579	+7,245	1	3	21,464	83	64	20,335	−1,127	25,799	31,917	+6,118
June 30, 1907	5,155	18	36	12,079	+6,924	----	3	23,631	82	64	21,631	−2,000	28,786	33,713	+4,927
June 30, 1908	5,080	16	31	10,332	+5,252	1	2	25,838	84	69	22,496	−3,342	30,919	32,830	+1,911
June 30, 1909	4,694	17	33	10,254	+4,560	2	5	23,098	83	67	20,785	−2,313	27,794	31,044	+3,250
Annual average, 1905–1909, May 1–June 30 (4 years 2 months) [7]	4,927	17	35	11,287	+6,360	1	3	23,682	83	65	21,292	−2,390	28,610	32,583	+3,973

June 30, 1910	[8] 10,775	29	47	18,703	+7,928	23	91	26,270	71	53	20,924	−5,346	37,068	39,718	+2,650
June 30, 1911	[9] 19,484	40	42	16,717	−2,767	335	97	[10] 30,015	60	58	22,965	−7,050	[11] 49,834	39,779	−10,055
June 30, 1912	20,604	38	43	21,635	+1,031	187	102	33,759	62	57	28,834	−4,925	54,550	50,571	−3,979
June 30, 1913	25,387	46	37	19,849	−5,538	260	121	30,681	54	63	33,713	+3,032	56,328	53,683	−2,645
(July 1–Dec. 31), 1913	[12] 14,326	51	37	8,833	−5,493	414	63	13,299	47	63	15,252	+1,953	28,039	24,148	−3,891
Dec. 31, 1914	24,011	49	50	24,428	+417	264	208	24,314	50	50	24,054	−260	48,589	48,690	+101
Annual average, 1909–1914, July 1–Dec. 31 (5 years 6 months)	20,834	42	43	20,030	−804	270	124	28,789	57	57	26,499	−2,290	49,892	46,653	−3,239
Dec. 31, 1915	26,381	54	44	23,653	−2,728	175	197	22,756	46	56	29,963	+7,207	49,312	53,813	+4,501
Dec. 31, 1916	[13] 22,863	50	51	35,648	+12,785	201	190	22,432	49	49	34,099	+11,667	45,496	69,937	+24,441
Dec. 31, 1917	37,621	57	66	63,234	+25,614	309	280	27,867	42	34	32,090	+4,223	65,797	95,604	+29,807
Dec. 31, 1918	58,825	60	66	89,147	+30,322	336	405	39,438	40	34	45,642	+6,204	98,599	135,194	+36,595
Annual average, 1915–1918, Jan. 1–Dec. 31 (4 years)	36,422	56	60	52,921	+16,498	255	268	28,123	44	40	35,448	+7,325	64,801	88,637	+23,836
Dec. 31, 1919	75,491	64	50	56,653	−18,839	2,036	355	41,112	34	50	56,110	+14,998	118,639	113,118	−5,521
Dec. 21, 1920	92,290	62	70	105,216	+12,926	1,843	424	55,305	37	30	45,484	−9,821	149,438	151,124	+1,686
Dec. 31, 1921	74,130	64	57	50,357	−23,773	928	447	40,781	35	42	37,311	−3,470	115,839	88,115	−27,724
Dec. 31, 1922	47,738	60	67	64,112	+16,373	330	410	32,130	40	33	31,061	−1,069	80,198	95,583	+15,385
Annual average, 1919–1922, Jan. 1–Dec. 31 (4 years)	72,412	62	62	69,084	−3,328	1,284	409	42,332	37	38	42,492	+160	116,028	111,985	−4,043
Dec. 31, 1923	50,353	58	70	85,047	+34,694	302	497	36,845	42	29	35,209	−1,636	87,500	120,753	+33,253
Dec. 31, 1924	60,399	56	72	97,314	+36,915	934	533	46,678	43	28	37,498	−9,180	108,011	135,345	+27,334
Dec. 31, 1925	69,298	58	73	109,045	+39,747	856	532	49,579	41	26	39,300	−10,279	119,733	148,877	+29,144
Dec. 31, 1926	71,576	60	73	100,003	+28,428	648	512	47,075	39	27	36,369	−10,706	119,299	136,884	+17,585
Dec. 31, 1927	71,478	62	75	116,038	+44,560	718	458	43,655	37	25	39,078	−4,577	115,851	155,574	+39,723
Dec. 31, 1928	83,858	62	75	115,586	+31,728	500	622	50,299	38	25	38,847	−11,451	134,657	155,055	+20,398
Annual average, 1923–1928, Jan. 1–Dec. 31 (6 years)	67,827	59	73	103,839	+36,012	660	525	45,688	40	27	37,717	−7,971	114,175	142,081	+27,906
Dec. 31, 1929	92,593	63	76	124,465	+31,872	655	518	53,912	37	24	39,464	−14,448	147,160	164,447	+17,287
Dec. 31, 1930	78,183	64	79	105,342	+27,159	[14]	[14]	44,910	36	21	27,825	−17,085	123,093	133,167	+10,074
Grand total, 31 years, Jan. 1, 1899–Dec. 31, 1929	1,092,214	51	61	1,446,249	+354,035	12,259	7,099	1,026,585	48	39	921,987	−104,598	2,131,058	2,375,335	+244,277
Grand total, 32 years, Jan. 1, 1899–Dec. 31, 1930	[9] 1,170,397	52	62	1,551,591	[9] +381,194	[14]	[14]	[10] 1,083,754	47	38	956,911	[10] 126,843	[11] 2,254,151	2,508,502	[11] +254,351

See footnotes on following page.

Source: 1899–1904 and 1914–1929, Annual Report of Insular Collector of Customs; 1905, Monthly Summary of Commerce of Philippine Islands; 1906–1907, Quarterly Summary of Commerce of Philippine Islands, April–June, 1907, p. 126; 1908–1911, Annual Report of the Insular Collector of Customs, fiscal year 1912, p. 75; 1912 and 1913, Annual Report of Insular Collector of Customs; fiscal year 1913, 6 months, 1913, Foreign Commerce of Philippine Islands January–December, 1914, and July–December, 1913.

[1] The Manila customhouse was opened under American occupation, Aug. 20, 1898; other Philippine ports were opened to foreign trade as the military occupation was extended.

[2] First 3 calendar years following American occupation of Manila on Aug. 13, 1898. No tariff preference accorded American trade in the Philippines or Philippine trade in the United States.

[3] Substantial importations of United States products not included, notably wheat flour and beer, which entered the Philippines from Hong Kong.

[4] Large amounts of manila fiber (abacá) not included, which entered the United States from intermediate foreign ports.

[5] Less than $1,000.

[6] Phillippine tariff act effective Nov. 15, 1901 (Act No. 230 of the Philippine Commission), and the reenactment thereof (congressional act of Mar. 8, 1902) were in effect throughout this period. No Philippine import tariff preferences accorded any country. Philippine products shipped to United States, if on free list of the United States tariff, exempted from Philippine export duties by the congressional act of Mar. 8, 1902. Rates of the United States tariff act of 1897, less a reduction of 25 per cent, were applied to dutiable imports into United States from the Philippines.

[7] Act of Mar. 3, 1905, and amendment of Feb. 26, 1906, were in effect respecting Philippine imports. No Philippine import tariff preference accorded any country. Philippine products shipped to United States, if on free list of the United States tariff, were exempted from Philippine export duties by congressional act of Mar. 8, 1902. Rates of United States tariff act of 1897, less a reduction of 25 per cent, were applied to dutiable imports into United States from the Philippines.

[8] Beginning Aug. 6, 1909, all United States products except rice, were admitted duty free into the Philippines, and all Philippine export duties on direct shipments to the United States were abolished; the rates of the Philippine tariff of 1909 on imports from countries other than the United States became effective Oct. 5, 1909 (congressional Philippine tariff act of Aug. 5, 1909).

Beginning Aug. 6, 1909, Philippine products also were admitted duty free into the United States, except (a) rice; (b) Philippine products containing in value more than 20 per cent of non-Philippine or non-American materials; (c) annual quantities, respectively, exceeding 150,000,000 cigars, 1,000,000 pounds filler tobacco, 300,000 pounds wrapper tobacco, and 300,000 gross tons sugar. (United States tariff act of Aug. 5, 1909.)

[9] From July 1, 1910 to Dec. 31, 1930, importations into the Philippines for account of the United States Government services are included, since they can not be segregated from published statistical values; the greater amounts of such importations were from the United States, and for the Army alone are tentatively estimated at not less than $50,000,000 from July 1, 1910 to Dec. 31, 1930. Since these importations were paid for by American taxpayers in the United States, they should be separately considered in order to establish more nearly the value of Philippine commercial imports, and their amount should be added to the nominal commodity trade balance, thus making the favorable balance to the islands on this basis, in their trade with the United States, not less than $431,194,000 to the end of 1930.

[10] From July 1, 1910 to Dec. 31, 1930, importations into the Philippines for account of the United States Government services are included, since they can not be segregated from published statistical values; such importations for the Army alone, from countries other than the United States and its possessions, are estimated at not less than $10,000,000 from July 1, 1910 to Dec. 31, 1930. Since these importations were paid for by American taxpayers in the United States, they should be separately considered in order to establish more nearly the value of Philippine commercial imports, and their amount should be deducted from the nominal trade balance, thus making the unfavorable balance to the islands on this basis, in their trade with countries other than the United States and its possessions, not more than $116,843,000 to the end of 1930.

[11] From July 1, 1910 to Dec. 31, 1930, importations into the Philippines for account of the United States Government services are included, since they can not be segregated from published statistical values; such importations for the Army alone, from the United States and other countries, are estimated at not less than $60,000,000 from July 1, 1910 to Dec. 31, 1930. Since these importations were paid for by American taxpayers in the United States, their amount should be added to the nominal commodity trade balance, thus making the total favorable balance to the islands on this basis, not less than $314,351,000 to the end of 1930.

[12] Under the United States tariff act of Oct. 3, 1913, the duty-free admission of United States products into the Philippines was continued and the earlier exception as to rice repealed. This status was continued without change under the tariff acts of Sept. 21, 1922 and June 17, 1930.

Under the United States tariff act of Oct. 3, 1913, all limitations upon the duty-free admission of Philippine products into the United States were repealed, except that of a maximum permissible foreign material content of 20 per cent in value; all Philippine export duties on shipments to any destination were repealed. This status was continued without change under the tariff acts of Sept. 21, 1922, and June 17, 1930.

[13] Under the act of Congress approved Aug. 29, 1916, the Philippine Legislature was authorized to enact tariff legislation for the islands, subject to the approval or disapproval of the President of the United States, but Congress in that act forbade the levying of export duties in the Philippines and reserved the right to enact laws governing trade relations between the Philippines and the United States. The authority thus given the Philippine Legislature has been exercised to a very limited extent and the import rates enacted by Congress for non-American merchandise entering the islands, with few exceptions, are still in force. (Congressional Philippine tariff act of Aug. 5, 1909, effective Oct. 5, 1909, with respect to non-American goods entering the islands.)

[14] In the preliminary figures for 1930 there is no segregation of the trade with Hawaii, Guam, and Porto Rico, and this has been included with countries other than continental United States for that year.

TABLE 5.—*Values and proportions of Philippine and United States exports reciprocally admitted duty free because of their respective origins* [1] *from the beginning of duty-free trade relations to the end of 1929*

[Values in thousands of dollars; i. e., 000 omitted]

Year ending—	Philippine products exempted by United States	Per cent of total United States imports from the Philippines	United States products exempted in Philippines [2]	Per cent of total Philippine imports from United States	Accumulated value of Philippine products exempted by United States	Accumulated value of United States products exempted in Philippines [2]
June 30, 1910	$6,163	35.59	$9,417	[3] 87.20	$6,163	$9,417
June 30, 1911	7,636	43.89	19,439	98.08	13,798	28,856
June 30, 1912	13,027	56.01	20,121	96.78	26,825	48,977
June 30, 1913	7,430	35.36	25,256	98.48	34,256	74,233
July–December, 1913 (6 months)			14,590	98.98		88,823
Annual average	6,564	43.37	19,607	96.12		
June 30, 1914	4,613	25.40			38,869	
Dec. 31, 1914			23,862	98.31		112,685
June 30, 1915	9,350	38.93			48,219	
Dec. 31, 1915			26,033	98.04		138,718
June 30, 1916	8,826	31.26			57,045	
Dec. 31, 1916			22,452	97.35		161,170
June 30, 1917	13,861	32.66			70,906	
Dec. 31, 1917			37,075	97.75		198,245
June 30, 1918	17,541	22.46			88,447	
Dec. 31, 1918			57,810	97.72		256,055
July–December, 1918 (6 months)	8,613	18.30			97,060	
Annual average	11,419	26.39	33,446	97.81		
Dec. 31, 1919	19,261	29.06	75,583	97.49	116,321	331,638
Dec. 31, 1920	64,353	56.97	92,074	97.81	180,675	423,712
Dec. 31, 1921	35,521	68.10	73,400	97.79	216,196	497,112
Dec. 31, 1922	43,169	69.91	47,417	98.65	259,364	544,529
Dec. 31, 1923	51,331	66.04	49,835	98.38	310,695	594,364
Annual average	42,725	57.60	67,662	97.94		
Dec. 31, 1924	70,344	72.45	60,773	99.09	381,040	655,137
Dec. 31, 1925	73,982	66.15	69,635	99.26	455,022	724,773
Dec. 31, 1926	69,912	67.35	71,365	98.81	524,934	796,138
Dec. 31, 1927	86,325	74.44	71,684	99.29	611,259	867,822
Dec. 31, 1928	88,162	76.26	83,650	99.16	699,421	951,472
Annual average	77,745	71.42	71,422	99.12		
Dec. 31, 1929	97,920	77.84	92,587	99.29	797,341	1,044,059

[1] This table shows the trade in articles which are dutiable on both sides when imported from other countries. Philippine imports from the United States possessions are included.

[2] Imports for account of or for sale to the United States Government services in the Philippines are included in these figures beginning July 1, 1910. The amounts of these importations can not be ascertained from public statistics; it can only be estimated that during the 19½-year period, July 1, 1910–Dec. 31, 1929, they were not less than $50,000,000 for the Army alone, and possibly were much greater in amount. The amount of strictly commercial importations admitted duty free into the Philippines from the United States because of their American origin is therefore less than here indicated by the amount of importations for the United States Government service.

[3] American goods were still subject to the full Philippine import duties during the first 5 weeks of this period.

TABLE 6.—*Estimate of scheduled duties nominally waived by the United States on Philippine exports, and by the Philippines on United States exports, from the beginning of reciprocal duty-free trade to December 31, 1929*

[Values in thousands of dollars; i. e., 000 omitted]

Year ending—	Including tobacco and tobacco products			
	Duties waived by United States on Philippine products [1]	Duties waived in Philippines on United States products [2]	Accumulated duties waived by United States on Philippine products [1]	Accumulated duties waived in Philippines on United States products [2]
June 30, 1910 [3]	$8,304	$2,433	$8,304	$2,433
June 30, 1911	5,778	4,023	14,081	6,456
June 30, 1912	9,241	4,348	23,322	10,804
June 30, 1913	10,572	5,317	33,894	16,121
Dec. 31, 1913 (6 months)	----	3,126	----	19,247
Annual average	8,474	4,277	----	----
June 30, 1914	5,301	----	39,195	----
Dec. 31, 1914	----	5,181	----	24,428
June 30, 1915	8,227	----	47,423	----
Dec. 31, 1915	----	5,921	----	30,349
June 30, 1916	7,939	----	55,362	----
Dec. 31, 1916	----	4,955	----	35,304
June 30, 1917	15,041	----	70,402	----
Dec. 31, 1917	----	7,639	----	42,943
June 30, 1918	25,140	----	95,543	----
Dec. 31, 1918	----	10,932	----	53,875
Dec. 31, 1918 (6 months)	14,931	----	110,473	----
Annual average	13,923	6,926	----	----
Dec. 31, 1919	26,464	14,136	133,937	68,011
Dec. 31, 1920	36,563	17,669	170,500	85,680
Dec. 31, 1921	20,515	14,958	191,016	100,638
Dec. 31, 1922	27,844	10,249	218,860	110,887
Dec. 31, 1923	34,276	10,693	253,136	121,580
Annual average	28,532	13,541	----	----
Dec. 31, 1924	36,429	12,983	239,564	134,564
Dec. 31, 1925	43,114	16,440	332,679	151,004
Dec. 31, 1926	38,681	18,350	371,360	169,354
Dec. 31, 1927	43,018	19,566	414,378	189,622
Dec. 31, 1928	45,841	23,582	460,219	213,204
Annual average	41,417	18,184	----	----
Dec. 31, 1929	51,938	27,412	512,157	240,616

[1] Based as to sugar on the United States preferential rate on Cuban sugar.

[2] Schedule duties waived on imports for account of the United States services in the Philippines are included from July 1, 1910. The amount of these imports cannot be ascertained faom published statistics and consequently the duties waived thercon can only be estimoted. It is believed thot the amount of these duties would not have been less than $7,500,000, and possibly they were much more during the period here tabulated; it is evident that duties remitted on such importations should not be considered as dtuties waived on strictly commercial shipments to the Philippines.

[3] Effectively reciprocal duty-free trade relations began under the act of Aug. 5, 1909.

TABLE 6.—*Estimate of scheduled duties nominally waived by the United States on Philippine exports, and by the Philippines on United States exports, from the beginning of reciprocal duty-free trade to December 31, 1929*—Continued.

[Values in thousands of dollars; i. e., 000 omitted]

Year ending—	Not including tobacco and tobacco products [1]			
	Duties waived by United States on Philippine products [2]	Duties waived in Philippines on United States products [3]	Accumulated duties waived by United States on Philippine products [2]	Accumulated duties waived in Philippines on United States products [3]
June 30, 1910 [4]	$2,646	$1,974	$2,646	$1,974
June 30, 1911	3,420	3,768	6,066	5,742
June 30, 1912	4,818	3,928	10,884	9,670
June 30, 1913	2,346	4,887	13,230	14,557
Dec. 31, 1913 (6 months)	----------	2,891	----------	17,448
Annual average	3,308	3,877	----------	----------
June 30, 1914	1,189	----------	14,419	----------
Dec. 31, 1914	----------	4,729	----------	22,177
June 30, 1915	3,629	----------	18,048	----------
Dec. 31, 1915	----------	5,318.	----------	27,495
June 30, 1916	2,722	----------	20,770	----------
Dec. 31, 1916	----------	4,297	----------	31,792
June 30, 1917	3,995	----------	24,765	----------
Dec. 31, 1917	----------	6,646	----------	38,438
June 30, 1918	3,300	----------	28,065	----------
Dec. 31, 1918	----------	9,601	----------	48,039
Dec. 31, 1918 (6 months)	1,514	----------	29,579	----------
Annual average	2,973	6,118	----------	----------
Dec. 31, 1919	3,897	12,658	33,476	60,697
Dec. 31, 1920	8,420	14,248	41,896	74,945
Dec. 31, 1921	11,924	11,384	53,820	86,329
Dec. 31, 1922	15,944	7,839	69,764	94,168
Dec. 31, 1923	13,201	8,004	82,965	102,172
Annual average	10,677	10,827	----------	----------
Dec. 31, 1924	20,607	9,346	103,572	111,518
Dec. 31, 1925	26,896	10,804	130,468	122,322
Dec. 31, 1926	23,320	11,534	153,788	133,856
Dec. 31, 1927	29,338	11,614	183,126	145,470
Dec. 31, 1928	31,782	13,531	214,908	159,001
Annual average	26,389	11,366	----------	----------
Dec. 31, 1929	40,329	15,024	255,237	174,025

[1] The preference arising through reciprocal duty-free entry of tobacco and tobacco products is but partly effective in the price received either for Philippine tobacco products in the United States or for United States tobacco products in the Philippines; therefore, the duties which would have accrued on such importtations have been entirely omitted in the last four columns of this tabulation. Duties waived in the Philippines on relatively small importations of spirits, spirituous liquors, and matches from the United States, have also been omitted in the third from last and last columns of the tabulation.

[2] Based as to sugar on the United States preferential rate on Cuban sugar.

[3] Scheduled duties waived on imports for account of the United States services in the Philippines are included from July 1, 1910. The amount of these imports can not be ascertained from published statistics, and consequently the duties waived thereon can only be estimated. It is believed that the amount of these duties would not have been less than $7,500,000, and possibly they were much more during the period here tabulated; it is evident that duties remitted on such importations should not be considered as duties waived on strictly commercial shipments to the Philippines.

[4] Effectively reciprocal duty-free trade relations began under the act of Aug. 5, 1909.

TABLE 7.—*Ad valorem equivalent of estimated duties nominally waived on Philippine and American products in the United States and the Philippines, respectively*

Year ending—	Duties on Philippine products, nominally waived by United States	Duties on United States products, nominally waived in Philippines	Duties on Philippine products, excluding all tobacco, nominally waived by United States	Duties on United States products, nominally waived in Philippines, excluding all tobacco, distilled liquors, and matches
	Per cent	*Per cent*	*Per cent*	*Per cent*
June 30, 1910	134.7	25.8	59.0	21.6
June 30, 1911	75.7	20.7	51.0	19.6
June 30, 1912	70.9	21.6	41.2	19.8
June 30, 1913	142.3	21.1	46.1	19.6
July–December, 1913 (6 months)	----------	21.4	----------	20.0
Annual average	98.9	21.7	47.3	19.9
June 30, 1914	114.9	----------	36.7	----------
Dec. 31, 1914	----------	21.7	----------	20.1
June 30, 1915	88.0	----------	45.2	----------
Dec. 31, 1915	----------	22.7	----------	20.7
June 30, 1916	89.9	----------	36.6	----------
Dec. 31, 1916	----------	22.1	----------	19.5
June 30, 1917	108.5	----------	36.3	----------
Dec. 31, 1917	----------	20.6	----------	18.2
June 30, 1918	143.3	----------	27.9	----------
Dec. 31, 1918	----------	18.9	----------	16.8
July–December, 1918 (6 months)	173.3	----------	33.2	----------
Annual average	121.1	20.7	35.5	18.6
Dec. 31, 1919	121.8	18.7	31.7	17.0
Dec. 31, 1920	56.8	19.2	[1] 15.9	15.8
Dec. 31, 1921	57.8	20.4	37.5	15.9
Dec. 31, 1922	64.5	21.6	40.6	16.9
Dec. 31, 1923	66.8	21.5	29.0	16.4
Annual average	66.8	20.0	29.3	16.3
Dec. 31, 1924	51.7	21.4	31.4	15.7
Dec. 31, 1925	58.3	23.6	29.2	15.9
Dec. 31, 1926	55.3	25.7	36.1	16.6
Dec, 31, 1927	49.8	27.3	35.8	[2] 16.8
Dec. 31, 1928	52.0	28.2	38.1	[2] 16.8
Annual average	53.3	25.5	36.2	16.4
Dec. 31, 1929	52.1	29.6	40.3	[2] 16.8

[1] The extraordinarily high prices of sugar in 1920, to which a specific rate of preference was applied, account for the low level of 15.9 per cent in this year.

[2] Estimated by adding 0.5 per cent to annual average of 16.28 per cent during 5 years 1922–1926.

TABLE 8.—*Ad valorem equivalent of import duties in the Philippines and in the United States, 1911–1929, computed on value of dutiable imports*

Philippine import duties		United States import duties	
Year ending—	Per cent	Year ending—	Per cent
June 30, 1911	23.8	June 30, 1911	41.2
June 30, 1912	22.5	June 30, 1912	40.1
June 30, 1913	22.1	June 30, 1913	40.1
Dec. 31, 1913 (6 months)	22.1	June 30, 1914	37.6
Dec. 31, 1914	21.8	June 30, 1915	33.4
Dec. 31, 1915	24.7	June 30, 1916	30.7
Dec. 31, 1916	23.2	June 30, 1917	27.2
Dec. 31, 1917	20.8	Dec. 31, 1918	24.1
Dec. 31, 1918	18.0	Dec. 31, 1919	21.3
Dec. 31, 1919	13.7	Dec. 31, 1920	16.4
Dec. 31, 1920	12.8	Dec. 31, 1921	29.4
Dec. 31, 1921	16.1	Dec. 31, 1922	38.1
Dec. 31, 1922	18.2	Dec. 31, 1923	36.1
Dec. 31, 1923	18.9	Dec. 31, 1924	36.3
Dec. 31, 1924	19.6	Dec. 31, 1925	37.6
Dec. 31, 1925	18.6	Dec. 31, 1926	39.3
Dec. 31, 1926	17.9	Dec. 31, 1927	38.8
Dec. 31, 1927	18.7	Dec. 31, 1928	38.8
Dec. 31, 1928	19.3	Dec. 31, 1929	38.4
Dec. 31, 1929	19.9		

TABLE 9.—*Annual average values of leading Philippine exports, 1890–1894, 1900–1902, and 1903–1909*

[Values in thousands of dollars; i. e., 000 omitted]

	Exports to United States	Percentage of value of exports of all products to United States	Percentage of value of exports of sugar to all countries	Exports to United States	Percentage of value of exports of all products to United States	Percentage of value of exports of tobacco products to all countries
	Sugar			Tobacco products		
1890–1894, 5 calendar years (Spanish sovereignty)	$1,303	6.5	17.8	$3	(1)	1.1
1900–1902, 3 fiscal years [2]	136	.6	5.0	5	(1)	.2
1903–1909 [3]	1,103	3.4	25.4	26	0.1	1.1
	Manila fiber [4]			Copra [4]		
1890–1894	[5] 2,067	10.3	26.5	6	(1)	1.2
1900–1902	[5] 4,370	19.6	31.4	1	(1)	.1
1903–1909	10,659	33.1	53.6	94	0.3	2.2

	Increases in exports to the United States (annual averages) 1903–1909 compared with—	
	1890–1894	1900–1902
Sugar	[6] $200	$967
Tobacco products	23	21
Manila fiber	8,592	6,289
Copra	88	93

[1] Less than one-tenth of 1 per cent.

[2] No reduction under United States tariff on sugar and on tobacco products, except following Mar. 8, 1902.

[3] 25 per cent reduction in duties of tariff act of 1897, but preceding limited duty-free trade with United States.

[4] Manila fiber and copra on free list of the United States tariff, regardless of origin, throughout periods tabulated, and not affected by 25 per cent reduction in rates on Philippine products under the act of Mar. 8, 1902.

[5] Much greater amounts and proportions of manila fiber than here indicated were shipped to the United States during 1890–1894 and 1900–1902, through intermediate destinations; the real increases in American consumption of this fiber during 1903–1909 were therefore not as great as here shown.

[6] Decrease.

TABLE 10.—*Leading Philippine exports to all countries and to the United States,*[1] *August 20, 1898–June 30, 1909*

[Values in thousands of dollars; i. e., 000 omitted]

Year ending June 30—	Manila fiber (abacá)					Cane sugar				
	To all countries		To United States			To all countries		To United States		
	Value	Per cent[2]	Value	Per cent[3]	Per cent[2]	Value	Per cent[2]	Value	Per cent[3]	Per cent[2]
1900	$11,399	57.7	$3,446	30.2	17.4	$3,022	15.3	$21	0.7	0.1
1901	14,453	62.3	2,403	16.6	10.4	2,293	9.9	93	4.1	.4
1902	15,841	66.2	7,261	45.8	30.4	2,761	11.5	293	10.6	1.2
3-year average, 1900–1902	13,898	62.3	4,370	31.4	19.6	2,692	12.1	136	5.0	.6
1903	21,702	65.5	12,314	56.7	37.2	3,956	11.9	1,336	33.8	4.0
1904	21,795	72.0	10,632	48.8	35.2	2,669	8.8	354	13.3	1.2
1905	22,146	68.4	12,955	58.5	40.0	4,977	15.4	2,618	52.6	8.1
1906	19,447	60.9	11,168	57.4	35.0	4,864	15.2	260	5.4	.8
1907	21,085	62.5	11,327	53.7	33.6	3,934	11.7	234	6.0	.7
1908	17,312	52.8	7,684	44.4	23.4	5,665	17.3	2,037	36.0	6.2
1909	15,834	51.1	8,534	53.9	27.5	4,373	14.1	881	20.2	2.8
7-year average, 1903–1909	19,903	61.9	10,659	53.6	33.1	4,348	13.5	1,103	25.4	3.4

Year ending June 30—	Tobacco and manufactures of tobacco					Copra				
	To all countries		To United States			To all countries		To United States		
	Value	Per cent[2]	Value	Per cent[3]	Per cent[2]	Value	Per cent[2]	Value	Per cent[3]	Per cent[2]
1900	$2,182	11.0	$2	0.1	(4)	$1,691	8.6	------	------	------
1901	2,218	9.6	5	.2	(4)	2,648	11.4	$4	0.2	(4)
1902	2,501	10.4	9	.4	(4)	1,002	4.2	------	------	------
3-year average, 1900–1902	2,300	10.3	5	.2	(5)	1,780	8.0	1	.1	------
1903	1,882	5.7	46	2.4	0.1	4,473	13.5	9	.2	(4)
1904	2,013	6.6	2	.1	(4)	2,527	8.4	9	.4	(4)
1905	1,999	6.2	9	.4	(4)	2,095	6.5	14	.7	(4)
1906	2,390	7.5	31	1.3	.1	4,043	12.7	------	------	------
1907	3,129	9.3	26	.8	.1	4,053	12.0	108	2.7	0.3
1908	2,715	8.3	22	.8	.1	5,462	16.6	229	4.2	.7
1909	2,792	9.0	44	1.6	.1	6,658	21.5	287	4.3	.9
7-year average, 1903–1909	2,417	7.5	26	1.1	.1	4,187	13.0	94	2.2	.3

[1] Exports were of Philippine products only. Exports to United States possessions (which were small in amount during the periods here tabulated) are not included in this table as exports to the United States. The annual averages shown for manila fiber, cane sugar, tobacco products, and copra are also included in Tables 11 and 12 for convenience of comparison with later averages.

[2] From July 1, 1909, to Dec. 31, 1914. Duty-free trade with United States inaugurated Aug. 6, 1909.

[3] Years ended June 30. Small shipments to United States possessions omitted. Philippine products enjoyed 25 per cent reduction from United States tariff under act of Mar. 8, 1902.

[4] Less than one-tenth of 1 per cent.

TABLE 10.—*Leading Philippine exports to all countries and to the United States, August 20, 1898 June 30, 1909*—Continued

[Values in thousands of dollars; i. e., 000 omitted]

Year ending June 30—	All other products					Total exports		
	To all countries		To United States			To all countries	To United States	
	Value	Per cent [2]	Value	Per cent [3]	Per cent [2]	Value	Value	Per cent [3]
1899 [5]						$12,367	$3,541	28.6
1900	$1,457	7.4	$53	3.6	0.3	19,751	3,522	17.8
1901	1,603	6.9	66	4.1	.3	23,215	2,572	11.1
1902	1,822	7.6	128	7.0	.5	23,928	7,692	32.2
3-year average, 1900–1902	1,627	7.3	82	5.0	.4	22,298	4,595	20.6
1903	1,108	3.4	158	14.3	.5	33,120	13,863	41.9
1904	1,247	4.1	106	8.5	.4	30,251	11,103	36.7
1905	1,135	3.5	74	6.5	.2	32,353	15,668	48.4
1906	1,173	3.7	120	10.2	.4	31,917	11,579	36.3
1907	1,511	4.5	384	25.4	1.1	33,713	12,079	35.8
1908	1,664	5.1	352	21.2	1.1	32,817	10,323	31.5
1909	1,337	4.3	468	35.0	1.5	30,994	10,215	33.0
7-year average, 1903–1909	1,311	4.1	237	18.1	.7	32,166	12,119	37.7

[2] Per cent of total Philippine exports of all kinds to all countries.
[3] Per cent of this commodity which was shipped to the United States.
[5] Aug. 20, 1898–June 30, 1899.

TABLE 11.—*Leading Philippine exports to the United States and possessions, exempted from import duty after August 5, 1909, from July 1, 1899, to December 31, 1929* [1]

[Values in thousands of dollars, i. e., 000 omitted]

Commodity	1929	1928	5-year average, 1923–1927	4-year average, 1919–1922	4-year average, 1915–1918	5½-year average, 1909–1914 [2]	7-year average, 1903–1909 [3]	3-year average, 1900–1902 [4]
Cane sugar, all grades:								
Exports to United States, value	$52,161	$45,699	$37,269	$20,028	$6,868	$6,392	$1,103	$136
Percentage of total exports of this product taken by United States	98.0	96.1	91.2	69.0	47.4	71.7	25.4	5.1
Percentage of exports of all commodities to United States	41.9	39.5	36.7	29.1	13.0	31.8	9.1	3.0
Coconut, desiccated, cut, etc.:								
Exports to United States, value	$3,540	$3,722	$2,144	[5] $210	([6])	([6])	([6])	([6])
Percentage of total exports of this product taken by United States	100.0	100.0	99.9	99.9	-------	-------	-------	-------
Percentage of exports of all commodities to United States	2.8	3.2	2.1	.3	-------	-------	-------	-------
Coconut oil: [7]								
Exports to United States, value	$28,901	$23,240	$19,329	$18,545	$12,224	[8] $673	([6])	([6])
Percentage of total exports of this product taken by United States	99.0	98.9	96.8	80.7	98.2	98.3	-------	-------
Percentage of exports of all commodities to United States	23.2	20.1	19.0	26.9	23.1	3.4	-------	-------

[1] Calendar years unless otherwise stated.
[2] From July 1, 1909, to Dec. 31, 1914. Duty-free trade with United States inaugurated Aug. 6, 1909.
[3] Years ended June 30. Small shipments to United States possessions omitted. Philippine products enjoyed 25 per cent reduction from United States tariff under act of Mar. 8, 1902.
[4] Years ended June 30. Small shipments to United States possessions omitted. No reduction was granted to Philippine products from United States tariffs, except after Mar. 8, 1902.
[5] Adjusted to 1 year, 1922, only.
[6] Not recorded separately in Philippine commercial statistics.
[7] Coconut oil, not deodorized or refined, on free lists of United States tariffs prior to May 27, 1921, regardless of origin.
[8] Adjusted to 2½ years, July 1, 1912–Dec. 31, 1914, average is $1,316,000.

TABLE 11.—*Leading Philippine exports to the United States and possessions, exempted from import duty after August 5, 1909, from July 1, 1899, to December 31, 1929*—Continued

[Values in thousands of dollars, i. e., 000 omitted]

Commodity	1929	1928	5-year average, 1923–1927	4-year average, 1919–1922	4-year average, 1915–1918	5½-year average, 1909–1914	7-year average, 1903–1909	3-year average, 1900–1902
Cordage:								
Exports to United States, value	$977	$782	$650	$162	$133	$2	[6]	[6]
Percentage of total exports of this product taken by United States	51.3	44.0	49.3	28.9	35.6	4.2	-------	-------
Percentage of exports of all commodities to United States	.8	.6	.6	.2	.3	[9]	-------	-------
Embroideries, cotton:								
Exports to United States, value	$5,760	$4,389	$5,090	$4,958	$1,408	$160	[6]	[6]
Percentage of total exports of this product taken by United States	99.9	99.8	100.0	99.8	99.6	88.9	-------	-------
Percentage of exports of all commodities to United States	4.8	3.8	5.0	7.2	2.7	.8	-------	-------
Embroideries, silk:								
Exports to United States, value	$247	$127	$37	[10]	-------	-------	-------	-------
Percentage of total exports of this product taken by United States	100.0	99.4	100.0	35.9	[6]	[6]	[6]	[6]
Percentage of exports of all commodities to United States	.2	.1	[9]	[9]	-------	-------	-------	-------
Hats:								
Exports to United States, value	$1,551	$2,280	$1,003	$497	$538	$233	$26	-------
Percentage of total exports of this product taken by United States	75.7	67.9	68.2	87.1	97.7	61.8	[11] 18.1	[6]
Percentage of exports of all commodities to United States	1.2	2.0	1.0	.7	1.0	1.2	.2	-------
Pearl (shell) buttons:								
Exports to United States, value	$382	$385	$353	$180	$101	$54	-------	-------
Percentage of total exports of this product taken by United States	99.7	99.9	100.0	100.0	100.0	[12] 100.0	[6]	[6]
Percentage of exports of all commodities to United States	.3	.3	.3	.3	.2	.3	-------	-------
Shell manufactures, other:								
Exports to United States, value	$41	$23	$16	$3	-------	-------	-------	-------
Percentage of total exports of this product taken by United States	34.2	64.8	61.7	28.5	[6]	[6]	[6]	[6]
Percentage of exports of all commodities to United States	[9]	[9]	[9]	[9]	-------	-------	-------	-------
Tobacco manufactures and tobacco:								
Exports to United States, value	$3,635	$4,614	$5,019	$6,385	$4,143	$1,573	$26	$5
Percentage of total exports of this product taken by United States	41.4	53.8	53.0	48.6	54.8	34.8	1.1	.2
Percentage of exports of all commodities to United States	2.9	4.0	4.9	9.3	7.8	7.8	.2	.1
Veneers of wood, wood furniture, basket ware, and wood manufactures:								
Exports to United States, value	$45	$35	$151	$94	$52	$12	-------	-------
Percentage of total exports of this product taken by United States	75.0	74.3	79.5	74.4	84.6	72.5	[6]	[6]
Percentage of exports of all commodities to United States	[9]	[9]	.1	.1	.1	.1	-------	-------
Total above commodities:								
Exports to United States, value	$97,240	$85,296	$71,061	$51,062	$25,467	$9,099	$1,155	$141
Percentage of total exports of above products taken by United States	92.4	91.2	87.8	71.2	68.8	63.1	16.7	2.8
Percentage of exports of all commodities to United States	78.1	73.7	70.0	74.2	48.0	45.3	9.5	3.1

[6] Not recorded separately in Philippine commercial statistics.
[9] Less than one-tenth of 1 per cent.
[10] Less than $1,000.
[11] Adjusted to 6 years, July 1, 1903–June 30, 1909.
[12] Adjusted to 1½ years, July 1, 1913–Dec. 31, 1914.

TABLE 12.—*Leading Philippine exports to the United States and possessions, duty free in the United States regardless of country of origin from July 1, 1899, to December 31, 1929* [1]

[Values in thousands of dollars, i. e., 000 omitted]

Commodity	1929	1928	5-year average, 1923–1927	4-year average, 1919–1922	4-year average, 1915–1918	5½-year average, 1909–1914 [2]	7-year average, 1903–1909 [3]	3-year average, 1900–1902 [3]
Copra:								
Exports to United States, value	$11,441	$17,604	$12,825	$3,045	$4,156	$1,290	$94	$1
Percentage of total exports of this product taken by United States	73.5	78.1	72.6	34.5	52.4	11.8	2.3	.1
Percentage of exports of all commodities to United States	9.2	15.2	12.6	4.4	7.8	6.4	.8	(4)
Copra meal and cake:								
Exports to United States, value	$407	$368	$528	$534	[5] $1	$74	-------	-------
Percentage of total exports of this product taken by United States	10.7	12.7	31.0	52.0	6.4	48.7	(6)	(6)
Percentage of exports of all commodities to United States	.3	.3	.5	.8	(4)	[7] .4	-------	-------
Gums and resins:								
Exports to United States, value	$270	$284	$124	$115	$102	$13	-------	-------
Percentage of total exports of this product taken by United States	70.1	62.9	44.3	53.3	73.1	10.1	(6)	(6)
Percentage of exports of all commodities to United States	.2	.2	.1	.2	.2	.1	-------	-------
Lumber and timber:								
Exports to United States, value	$1,792	$1,642	$1,242	$398	$243	[8] $133	-------	-------
Percentage of total exports of this product taken by United States	57.4	52.5	56.2	54.2	63.1	67.9	-------	-------
Percentage of exports of all commodities to United States	1.4	1.4	1.2	.6	.5	.7	-------	-------
Maguey:								
Exports to United States, value	$212	$204	$341	$175	$715	$91	-------	-------
Percentage of total exports of this product taken by United States	13.0	11.6	13.5	13.9	44.1	22.9	-------	-------
Percentage of exports of all commodities to United States	.2	.2	.3	.3	1.3	.5	-------	-------
Manila fiber, abacá:								
Exports to United States, value	$12,276	$9,527	$14,933	$13,150	$21,847	$9,356	$10,659	$4,370
Percentage of total exports of this product taken by United States	43.2	35.8	49.0	55.2	57.1	50.1	53.6	31.4
Percentage of exports of all commodities to United States	9.9	8.2	14.7	19.1	41.2	46.6	88.0	95.1
Manila fiber, knotted hemp:								
Exports to United States, value	$21	(9)	$4	$2	$212	[10] $6	-------	-------
Percentage of total exports of this product taken by United States	1.3	-------	.4	1.5	33.0	.9	-------	-------
Percentage of exports of all commodities to United States	(4)	(4)	(4)	(4)	.4	(4)	-------	-------
Shells, unmanufactured:								
Exports to United States, value	$15	$23	$25	$26	$104	$20	-------	-------
Percentage of total exports of this product taken by United States	17.6	20.4	17.1	11.3	41.9	6.7	-------	-------
Percentage of exports of all commodities to United States	(4)	(4)	(4)	(4)	.2	.1	-------	-------
Total, above commodities:								
Exports to United States, value	$26,434	$29,652	$30,022	$17,445	$27,380	$10,983	$10,753	$4,371
Percentage of total exports of above products taken by United States	48.0	51.2	53.7	48.1	55.4	35.3	44.6	27.9
Percentage of exports of all commodities to United States	21.2	25.6	29.6	25.3	51.7	54.7	88.8	95.1

[1] Calendar years unless otherwise stated.
[2] From July 1, 1909, to Dec. 31, 1914.
[3] Years ended June 30. Copra and manila fiber (abacá) only tabulated. Small shipments to United States possessions omitted
[4] Less than one-tenth of 1 per cent.
[5] Adjusted to 3 years, Jan. 1, 1916–Dec. 31, 1918.
[6] Not recorded separately in Philippine commercial statistics.
[7] Adjusted to 1½ years, July 1, 1913–Dec. 31, 1914.
[8] Adjusted to 4½ years, July 1, 1910–Dec. 31, 1914.
[9] Less than $1,000.
[10] Adjusted to 2½ years, July 1, 1912–Dec. 31, 1914.

TABLE 13 (1).—*Annual average values of principal United States imports from the Philippine Islands, July 1, 1909–December 31, 1928, by commodities*

[Values in thousands of dollars; i. e., 000 omitted]

Commodities (the marginal letters (A) to (R) refer to detailed tables for these commodities, by years, shown on pages 82 to 99	5 years, Jan. 1, 1924–Dec. 31, 1928			5 years, Jan. 1, 1919–Dec. 31, 1923		
	Annual average value	Percentage of total imported from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Annual average value	Percentage of total imported from all sources	Percentage of total imports from Philippine Islands consisting of this commodity
(A) Cane sugar	$41,134	15.8	37.8	$23,347	5.2	31.5
(B) Coconut oil	20,997	99.9	19.3	18,323	81.0	24.7
(C) Manila fiber	14,596	99.2	13.4	13,632	99.0	18.4
(D) Copra	14,041	71.7	12.9	4,338	35.3	5.8
(E) Tobacco, cigars, cigarettes, etc	4,669	55.9	4.3	6,075	60.2	7.2
(F) Cotton embroideries and laces [1]	4,380	24.8	4.0	3,655	18.6	4.9
(G) Coconut meat, desiccated, etc	2,723	59.5	2.5	193	5.3	.3
(H) Wood in logs, planks, deals, veneers, etc	1,574	2.7	1.4	379	.7	.5
(I) Hats, bonnets, etc., of straw, etc	1,240	16.1	1.1	401	8.6	.5
(J) Cordage, yarns, threads, etc	801	55.3	.7	234	39.0	.3
(K) Cotton ready-made clothing, [2] etc	121	5.7	.1	89	8.7	.1
(L) Coconut-oil cake or meal	492	90.4	.5	1,117	92.7	1.5
(M) Buttons of pearl or shell	394	86.6	.4	170	17.6	.2
(N) Tobacco leaf, filler, and other	265	.5	.2	221	.5	.3
(O) Shells, engraved, cut, etc	12	11.6	[3]	4	7.5	[3]
(P) Maguey or cantala	11	12.9	[3]	25	99.9	[3]
(Q) Furniture of wood, etc	8	.2	[3]	20	1.2	[3]
(R) Binding twine	2	.2	[3]	20	1.2	[3]
Hat materials of straw, etc	[4]	[2]	[3]	16	.2	[3]
All other	1,403		1.3	1,921		2.6
Total	108,863		100.0	74,180		100.0

Commodities (the marginal letters (A) to (R) refer to detailed tables for these commodities, by years, shown on pages 82 to 99	5½ years, July, 1913–Dec. 31, 1918			4 years, July 1, 1909–June 30, 1913		
	Annual average value	Percentage of total imported from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Annual average value	Percentage of total imported from all sources	Percentage of total imports from Philippine Islands consisting of this commodity
(A) Cane sugar	$6,408	3.4	14.8	$6,645	6.5	33.7
(B) Coconut oil	9,324	60.8	21.5	23	.6	.1
(C) Manila fiber	17,903	99.6	41.4	9,741	98	49.3
(D) Copra	3,617	32.7	8.4	1,104	66.5	5.6
(E) Tobacco, cigars, cigarettes, etc	2,586	42.5	6	1,566	27.7	7.9
(F) Cotton embroideries and laces [1]	892	4.2	2.1	12	[3]	.1
(G) Coconut meat, desiccated, etc	1	.1	[3]	[5]	[5]	[5]
(H) Wood in logs, planks, deals, veneers, etc	85	.3	.2	54	.2	.3
(I) Hats, bonnets, etc., of straw, etc	425	9.3	1	193	5.4	1
(J) Cordage, yarns, threads, etc	39	6.1	.1	[5]	[5]	[5]
(K) Cotton ready-made clothing, [2] etc	9	1.4	[3]	[5]	[3]	[3]
(L) Coconut-oil cake or meal	[4]	93.6	[3]	[5]	[5]	[5]
(M) Buttons of pearl or shell	76	12.1	.2	17	16.5	.1
(N) Tobacco leaf, filler, and other	448	2	1	6	[3]	[3]
(O) Shells, engraved, cut, etc	[4]	1.5	[3]	[4]	.1	[3]
(P) Maguey or cantala	[5]	[5]	[5]	[5]	[5]	[5]
(Q) Furniture of wood, etc	12	1.8	[3]	5	.5	[3]
(R) Binding twine	9	[3]	[3]	7	[3]	[3]
Hat materials of straw, etc	15	.2	[3]	[4]	[3]	[3]
All other	1,428		3.3	373		1.9
Total	43,277		100.0	19,746		100.0

[1] See also cotton ready-made clothing (K).
[2] See also cotton embroideries (F).
[3] Less than one-tenth of 1 per cent.
[4] Less than $1,000.
[5] Not recorded.

TABLE 13 (2).—*Values of principal United States imports from the Philippine Islands, 1929 and 1930, by commodities*

[Values in thousands of dollars; i. e., 000 omitted]

Commodities (the marginal letters (A) to (S) refer to detailed tables for these commodities, for earlier years, shown on pages 82 to 99	1929			1930 [1]		
	Value	Percentage of total imported from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Value	Percentage of total imported from all sources	Percentage of total imports from Philippine Islands consisting of this commodity
(A) Cane sugar	$49,692	26.4	39.5	$51,397	34.4	47.0
(B) Coconut oil	29,552	100.0	23.5	19,901	100.0	18.2
(C) Manila fiber	13,338	98.8	10.6	8,512	96.2	8.0
(D) Copra	13,154	54.4	10.5	12,493	57.3	11.4
(E) Tobacco, cigars, cigarettes, etc	3,369	51.3	2.7	3,009	53.1	2.8
(F) Cotton embroideries and laces [2]	5,390	32.1	3.1	3,439	28.5	3.1
(G) Coconut meat, desiccated, etc	3,395	87.0	2.7	3,278	91.4	3.0
(H) Wood in logs, planks, deals, veneers, etc	1,582	3.2	1.3	1,550	4.8	1.4
(I) Hats, bonnets, etc., of straw, etc	2,019	22.1	1.6	873	7.3	.8
(J) Cordage, yarns, threads, etc	960	43.2	.8	960	66.9	.9
(K) Cotton ready-made clothing [3]	138	11.2	.1	93	6.9	.1
(L) Coconut-oil cake or meal	377	74.5	.3	380	89.6	.3
(M) Buttons of pearl or shell	366	87.1	.3	383	87.6	.4
(N) Tobacco leaf, filler, and other	444	1.0	(4)	528	1.2	.5
(O) Shells, engraved, cut, etc	14	31.8	(4)	7	16.3	(4)
(P) Maguey or cantala	48	94.4	(4)	101	99.0	.1
(Q) Furniture of wood, etc.[5]						
(R) Binding twine	5	.3		(6)	(6)	(6)
(S) Mangrove tanning extract	169	64.6	.1	244	80.5	.2
Hat materials of straw, etc.[5]						
All other	3,780		3.0			
Total	125,792	2.9	100.0	109,390	3.5	

[1] Includes preliminary figures for June 18–Dec. 31, 1930.
[2] See also cotton ready-made clothing (K).
[3] See also cotton embroideries (F).
[4] Less than one-tenth of 1 per cent.
[5] No imports shown for 1929 and 1930, but shown for earlier years. (See Table 13 (1).)
[6] Not available April 3, 1931.

TABLE 13 (A).—*United States imports of cane sugar from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Quantity from Philippines (in thousands of long tons) [1]	Percentage of total quantity from all sources	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from P. I. consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs [2]
						Per cent
June 30, 1910	78	4.3	$4,260	4.1	24.6	60.2
June 30, 1911	103	5.6	6,487	6.3	37.3	51.7
June 30, 1912	196	10.6	11,242	9.8	48.3	41.6
June 30, 1913	91	5.1	4,593	5.1	21.9	47.5
Annual average, 4 years	117	6.4	6,645	6.5	33.7	48.1
June 30, 1914	51	2.1	2,556	2.4	14.1	41.3
June 30, 1915	146	6.2	7,511	4.6	31.3	46.5
June 30, 1916	97	3.8	6,389	3.1	22.6	36.3
June 30, 1917	121	4.8	8,479	3.5	20.0	34.0
June 30, 1918	78	3.5	7,913	3.3	10.1	23.4
July 1-Dec. 31, 1918	23	6.0	2,396	2.8	5.1	23.4
Annual average, 5½ years	94	4.0	6,408	3.4	14.8	34.5
Dec. 31, 1919	79	2.5	7,941	2.0	12.0	24.0
Dec. 31, 1920	130	3.8	42,417	4.4	37.6	7.4
Dec. 31, 1921	147	5.6	17,440	7.0	33.4	30.3
Dec. 31, 1922	245	5.7	19,299	7.7	31.3	49.0
Dec. 31, 1923	212	6.2	29,641	7.8	38.1	30.4
Annual average, 5 years	163	4.8	23,346	5.2	31.5	30.8
Dec. 31, 1924	303	8.1	39,465	10.8	40.6	30.3
Dec. 31, 1925	440	11.1	42,130	17.2	37.7	41.3
Dec. 31, 1926	340	8.4	29,606	13.3	28.5	45.4
Dec. 31, 1927	474	12.5	47,598	18.4	41.0	39.3
Dec. 31, 1928	513	14.7	46,873	22.4	40.5	54.1
Annual average, 5 years	414	10.9	41,134	15.8	37.8	39.8
Dec. 31, 1929	635	16.2	49,692	26.4	39.5	50.5
Jan. 1 to June 17, 1930	453	20.7	33,711	32.5	49.9	53.1
June 18 to Dec. 31, 1930 [3]	256	20.0	17,686	38.5	42.3	64.8

[1] Not adjusted to polarization basis.

[2] Computed at the effective rates of duty (the preferential rates on Cuban sugar); these ad valorem equivalents are, however, lower than the ad valorem equivalents of duties actually collected on duty-paid Cuban sugar, since the Philippine advantage of United States duties waived on Philippine sugar is reflected in the Philippine shipping point prices upon which these computations are based. Of course, no comparable tariff advantage accrues to duty-paid Cuban sugars, and their shipping point prices consequently are lower and do not reflect this advantage; hence the ad valorem equivalents of duties actually collected on Cuban sugar, necessarily computed as they would be on lower prices, would be considerably higher than the computed ad valorem equivalent of the United States duties waived on Philippine sugar as here shown.

[3] Preliminary figures.

TABLE 13 (B).—*United States imports of coconut oil from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total quantity from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
					Per cent
June 30, 1910 [1]					
June 30, 1911 [1]					
June 30, 1912 [1]					
June 30, 1913	92	2.2	2.7	0.4	[2]
Annual average, 4 years					
June 30, 1914	$1,766	26.3	25.6	9.7	[2]
June 30, 1915	2,903	53.5	50.6	12.1	[2]
June 30, 1916	2,873	47.5	45.6	10.2	[2]
June 30, 1917	5,141	56.3	55.9	12.1	[2]
June 30, 1918	18,229	59.0	59.7	23.3	[2]
July 1–Dec. 31, 1918	20,368	78.1	78.1	43.3	[2]
Annual average, 5½ years	9,324	60.8	59.0	21.5	
Dec. 31, 1919	25,434	71.9	71.6	38.4	[2]
Dec. 31, 1920	23,866	72.1	70.8	21.1	[2]
Dec. 31, 1921	13,177	86.0	86.4	25.3	[3] 38.6
Dec. 31, 1922	16,128	99.2	99.1	26.1	37.1
Dec. 31, 1923	13,009	99.2	99.3	16.7	27.8
Annual average, 5 years	18,323	81.0	78.7	24.7	13.7
Dec. 31, 1924	17,288	99.9	99.9	17.8	26.0
Dec. 31, 1925	19,650	99.7	99.8	17.6	23.7
Dec. 31, 1926	22,088	99.8	99.9	21.3	22.2
Dec. 31, 1927	22,900	100.0	100.0	19.7	25.6
Dec. 31, 1928	23,061	100.0	100.0	19.9	25.2
Annual average, 5 years	20,997	99.9	99.9	19.3	24.5
Dec. 31, 1929	29,552	100.0	100.0	23.5	27.9
Jan. 1–June 17, 1930	10,802	100.0	100.0	16.0	31.1
June 18–Dec. 18, 1930 [4]	9,099	99.9	99.9	21.7	33.0

[1] Imports not recorded.
[2] No preference.
[3] Emergency tariff act, approved May 27, 1921.
[4] Preliminary figures.

TABLE 13 (C).—*United States imports of manila fiber (abacá) from the Philippines July 1, 1909–December 31, 1930*

Year ending—	Value [1] from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
June 30, 1910	$10,436	99.2	60.3	No preference.
June 30, 1911	8,615	99.9	49.5	Do.
June 30, 1912	7,826	97.8	33.6	Do.
June 30, 1913	12,089	95.7	57.5	Do.
Annual average, 4 years	9,741	98	49.3	
June 30, 1914	9,714	99.3	53.5	Do.
June 30, 1915	9,163	99.6	38.1	Do.
June 30, 1916	14,413	99.9	51.1	Do.
June 30, 1917	17,995	99.6	42.4	Do.
June 30, 1918	31,269	99.8	40	Do.
July 1–Dec. 31, 1918	15,911	99	33.8	Do.
Annual average, 5½ years	17,903	99.6	41.4	
Dec. 31, 1919	19,102	99.2	28.8	Do.
Dec. 31, 1920	20,316	98.6	18	Do.
Dec. 31, 1921	5,703	97.7	10.9	Do.
Dec. 31, 1922	9,368	99.4	15.2	Do.
Dec. 31, 1923	13,669	99	17.6	Do.
Annual average, 5 years	13,632	99	18.4	
Dec. 31, 1924	14,235	99.2	14.7	Do.
Dec. 31, 1925	18,091	99.6	16.2	Do.
Dec. 31, 1926	18,213	99.6	17.5	Do.
Dec. 31, 1927	13,075	98.9	11.3	Do.
Dec. 31, 1928	9,367	98.3	8.1	Do.
Annual average, 5 years	14,596	99.2	13.4	
Dec. 31, 1929	13,338	98.8	10.6	Do.
Jan. 1–June 17, 1930	5,250			Do.
June 18–Dec. 31, 1930 [2]	3,262	96.2	8	Do.

[1] General imports.

[2] Preliminary figures.

TABLE 13 (D).—*United States imports of copra from the Philippines July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total quantity from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
June 30, 1910	$416	54.6	50.6	2.4	No preference.
June 30, 1911	889	57.8	58.9	5.1	Do.
June 30, 1912	2,064	73.5	72.3	8.9	Do.
June 30, 1913	1,047	68.3	68.7	5	Do.
Annual average, 4 years	1,104	66.5	65.4	5.6	
June 30, 1914	1,497	62.5	60.6	8.2	Do.
June 30, 1915	2,146	63.2	64.3	8.9	Do.
June 30, 1916	1,242	27.3	31.5	4.4	Do.
June 30, 1917	4,114	32.9	35.2	9.7	Do.
June 30, 1918	9,950	37	45.1	12.7	Do.
July 1–Dec. 31, 1918	947	8.6	9.1	2	Do.
Annual average, 5½ years	3,617	32.7	38.6	8.4	
Dec. 31, 1919	752	4.5	6.3	1.1	Do.
Dec. 31, 1920	423	3	10.6	.4	Do.
Dec. 31, 1921	3,148	42.6	43.7	6	Do.
Dec. 31, 1922	6,985	70.9	71.8	11.3	Do.
Dec. 31, 1923	10,385	77.1	78.1	13.4	Do.
Annual average, 5 years	4,338	35.3	45.4	5.8	
Dec. 31, 1924	10,507	81.7	82	10.8	Do.
Dec. 31, 1925	13,999	77.4	78	12.5	Do.
Dec. 31, 1926	14,037	59.7	60.2	13.5	Do.
Dec. 31, 1927	15,113	73.2	75.7	13	Do.
Dec. 31, 1928	16,548	72.6	74.1	14.3	Do.
Annual average, 5 years	14,041	71.7	73.2	12.9	
Dec. 31, 1929	13,154	54.4	54.3	10.5	Do.
Jan. 1–June 17, 1930	5,991	59.4	59.9	9.4	Do.
June 18–Dec. 31, 1930 [1]	6,502	55.6	54.1	15.5	Do.

[1] Preliminary figures.

TABLE 13 (E).—*United States imports of cigars, cheroots, cigarettes, etc.,*[1] *from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total quantity from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs [2]
					Per cent
June 30, 1910	$1,676	29.7	63.0	9.7	337.4
June 30, 1911	920	17.7	38.8	5.3	254.6
June 30, 1912	1,340	25.0	56.9	5.8	330.0
June 30, 1913	2,328	36.3	71.3	11.1	351.8
Annual average, 4 years	1,566	27.7	60.2	7.9	329.0
June 30, 1914	1,370	26.6	56.4	7.5	299.4
June 30, 1915	1,318	30.2	64.6	5.5	347.7
June 30, 1916	1,378	28.7	65.7	4.9	375.9
June 30, 1917	2,492	37.1	76.0	5.9	411.4
June 30, 1918	4,669	61.1	90.1	6.0	430.8
July 1–Dec. 31, 1918	2,995	62.6	89.0	6.4	398.4
Annual average, 5½ years	2,586	42.5	78.4	6.0	394.9
Dec. 31, 1919	6,829	61.7	88.0	10.3	282.9
Dec. 31, 1920	10,981	67.5	89.5	9.7	249.6
Dec. 31, 1921	3,145	49.9	82.2	6.0	262.9
Dec. 31, 1922	3,863	51.3	83.2	6.3	301.1
Dec. 31, 1923	5,559	60.0	89.7	7.2	366.3
Annual average, 5 years	6,075	60.2	87.6	7.2	286.4
Dec. 31, 1924	4,695	57.2	87.8	4.8	327.8
Dec. 31, 1925	5,137	55.5	86.7	4.6	307.8
Dec. 31, 1926	5,090	58.6	86.6	4.9	295.6
Dec. 31, 1927	4,194	52.4	86.0	3.6	312.7
Dec. 31, 1928	4,229	55.7	86.6	3.7	301.6
Annual average, 5 years	4,669	55.9	86.8	4.3	308.9
Dec. 31, 1929	3,369	51.3	78.1	2.7	304.2
Jan. 1 to June 17, 1930	1,240	58.8	78.5	1.8	289.4
June 18 to Dec. 31, 1930 [3]	1,769	49.7	80.0	4.2	324.8

[1] The annual average value of cigarettes for 1924–1928 was only $28,251; the value in 1928 was only $39,447; therefore cigars comprised practically the whole of this trade from the Philippines.

[2] Philippine cigars in general compete in the United States with American 5-cent and other low-priced cigars only, and even their retail price is considerably less than the duty alone would be if collected. The Philippine shipping-point price, upon which the ad valorem equivalent of duties nominally remitted is computed, is, of course, still less than the retail price of these cigars in the United States. It follows that the United States duties nominally waived are so much larger than the shipping-point price that only a fraction of such duties can be included in that price as a tariff advantage. The so-called remission in duties is therefore not real, but is largely nominal, and the ad valorem equivalent of this remission or preference, computed in part at a high specific rate of duty which is not and could not be collected upon the low-priced cigars, is likewise an exaggeration.

[3] Preliminary figures.

TABLE 13 (F).—*United States imports of cotton embroideries, laces, etc.,*[1] *from the Philippines July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
				Per cent
June 30, 1910	$1	(2)	(2)	60
June 30, 1911	7	(2)	(2)	60
June 30, 1912	22	0.1	0.1	60
June 30, 1913	19	.1	.1	60
Annual average, 4 years	12	(2)	.1	60
June 30, 1914	34	.1	.2	60
June 30, 1915	52	.2	.2	60
June 30, 1916	343	1.5	1.2	60
June 30, 1917	1,436	7.4	3.4	60
June 30, 1918	1,859	13.8	2.4	60
July 1–Dec. 31, 1918	1,184	20.9	2.5	60
Annual average, 5½ years	892	4.2	2.1	60
Dec. 31, 1919	2,818	15.1	4.3	60
Dec. 31, 1920	7,299	23.2	6.5	60
Dec. 31, 1921	5,280	20.7	10.1	60
Dec. 31, 1922	2,472	13.0	4.0	60
Dec. 31, 1923	[3] 407	1.9	.5	75.3
Annual average, 5 years	3,655	15.7	4.9	60.4
Dec. 31, 1924	4,270	16.6	4.4	75
Dec. 31, 1925	4,281	20.5	3.8	75
Dec. 31, 1926	5,632	29.6	5.4	75
Dec. 31, 1927	3,781	22.2	3.3	75
Dec. 31, 1928	3,997	24.2	3.5	75
Annual average, 5 years	4,380	22.1	4.0	75
Dec. 31, 1929	5,390	30.5	3.1	78
Jan. 1 to June 17, 1930	1,672	24.2	2.5	77
June 18 to Dec. 31, 1930	1,767	34.3	4.2	90

[1] For the 5 years 1919–1923 an annual average of 97 per cent of ready-made clothing imported from the Philippines was classified as "embroidered, in any manner, etc." This per cent (97) was applied to imports of ready-made clothing from the Philippines for the years 1924–1929, inclusive, and for the period Jan. 1 to June 17, 1930, and included in cotton laces and embroidery imported at 75 per cent ad valorem. From June 18 to Dec. 31, 1930, duty was computed at effective rate.

[2] Less than one-tenth of 1 per cent.

[3] According to division of statistics, Bureau of Foreign and Domestic Commerce, this figure is in error. Statistical Bulletin of the Philippine Islands, 1925, Table No. 72, p. 68, quotes embroideries and laces valued at $6,378,285 exported from the Philippines to the United States in 1923.

TABLE 13 (G).—*United States imports of coconut meat, desiccated, shredded, cut, etc., from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Value from the Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total quantity from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
					Per cent
June 30, 1910 [1]					
June 30, 1911 [1]					
June 30, 1912 [1]					
June 30, 1913 [1]					
Annual average, 4 years					
June 30, 1914 [1]					
June 30, 1915	[2]	[3]	[3]	[3]	20.7
June 30, 1916	$5	0.7	0.5	[3]	19.0
June 30, 1917	2	.3	.2	[3]	19.1
June 30, 1918 [1]					
July 1–Dec. 31, 1918 [1]					
Annual average, 5½ years					
Dec. 31, 1919 [1]					
Dec. 31, 1920 [1]					
Dec. 31, 1921 [1]					
Dec. 31, 1922	94	3.6	2.4	0.2	21.6
Dec. 31, 1923	869	23.2	18.9	1.1	34.7
Annual average, 5 years	193	5.3	5.3	.3	33.4
Dec. 31, 1924	1,506	39.4	34	1.6	37.3
Dec. 31, 1925	2,383	55.2	51	2.1	36.0
Dec. 31, 1926	2,683	61.8	59.3	2.6	37.7
Dec. 31, 1927	3,041	58.4	56.9	2.6	39.1
Dec. 31, 1928	4,005	76.9	75.7	3.5	40.8
Annual average, 5 years	2,723	59.5	56.5	2.5	38.6
Dec. 31, 1929	3,395	87.0	85.9	2.7	44.5
Jan. 1 to June 17, 1930	1,682	93.2	92.8	2.5	49.2
June 18 to Dec. 31, 1930 [4]	1,596	89.5	86.7	3.8	47.6

[1] Imports not recorded.
[2] Less than $500.
[3] Less than one-tenth of 1 per cent.
[4] Preliminary figures.

TABLE 13 (H).—*United States imports of wood,*[1] *all classes in logs, planks, deals, veneers, etc., from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
				Per cent
June 30, 1910	$47	0.2	0.3	2.2
June 30, 1911	35	.2	.2	1.6
June 30, 1912	15	.1	.1	6.1
June 30, 1913	117	.4	.6	1.7
Annual average, 4 years	54	.2	.3	2.1
June 30, 1914	179	.7	1.0	5.5
June 30, 1915	54	.2	.2	6.5
June 30, 1916	70	.3	.2	2.4
June 30, 1917	107	.4	.3	.5
June 30, 1918	12	(2)	(2)	1.8
July 1–Dec. 31, 1918	46	.2	.1	.4
Annual average, 5½ years	85	.3	.2	3.4
Dec. 31, 1919	146	.3	.2	6.3
Dec. 31, 1920	276	.4	.2	4.6
Dec. 31, 1921	530	1.5	1.0	6.2
Dec. 31, 1922	272	.5	.4	12.8
Dec. 31, 1923	673	1.0	.9	16.0
Annual average, 5 years	379	.7	.5	10.4
Dec. 31, 1924	1,264	2.1	1.3	15.1
Dec. 31, 1925	1,503	2.1	1.3	15.1
Dec. 31, 1926	1,366	2.0	1.3	14.7
Dec. 31, 1927	1,988	3.1	1.7	14.2
Dec. 31, 1928	1,747	3.8	1.5	14.4
Annual average, 5 years	1,574	2.7	1.4	14.6
Dec. 31, 1929	1,582	3.2	1.3	15.0
Jan. 1 to June 17, 1930	988	5.9	1.5	14.2
June 18 to Dec. 31, 1930 [3]	562	3.6	1.3	14.2

[1] The annual average value of boards, planks, deals, etc., in 1924–1928 was $1,353,152; the value in 1928 was $1,537,600.
[2] Less than one-tenth of 1 per cent.
[3] Preliminary figures.

63839—31——7

TABLE 13 (I).—*United States imports of hats, bonnets, etc., of straw, etc., from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
				Per cent
June 30, 1910	$135	4.9	0.8	60.0
June 30, 1911	135	4.7	.8	35.0
June 30, 1912	336	7.8	1.4	35.0
June 30, 1913	297	6.6	1.4	35.0
Annual average, 4 years	193	5.4	1.0	35.1
June 30, 1914	233	4.2	1.3	25.0
June 30, 1915	259	5.3	1.1	25.0
June 30, 1916	393	7.8	1.4	25.0
June 30, 1917	521	10.2	1.2	25.6
June 30, 1918	636	21.0	.8	25.1
July 1–Dec. 31, 1918	297	19.5	.6	26.1
Annual average, 5½ years	425	9.3	1.0	25.3
Dec. 31, 1919	583	12.8	.9	25.1
Dec. 31, 1920	820	13.3	.7	25.7
Dec. 31, 1921	267	7.3	.5	25.9
Dec. 31, 1922	247	5.1	.4	30.0
Dec. 31, 1923	86	2.1	.1	37.2
Annual average, 5 years	401	8.6	.5	26.6
Dec. 31, 1924	542	12.0	.6	37.2
Dec. 31, 1925	1,465	18.7	1.3	37.2
Dec. 31, 1926	1,483	15.3	1.4	37.2
Dec. 31, 1927	852	10.4	.7	37.2
Dec. 31, 1928	1,855	22.6	1.6	37.3
Annual average, 5 years	1,240	16.1	1.1	[1] 37.3
Dec. 31, 1929	2,019	22.1	1.6	[2] 25.0
Jan. 1 to June 17, 1930	456	5.5	.7	[2] 25.0
June 18 to Dec. 31, 1930 [3]	417	11.4	1.0	[2] 25.0

[1] From 1924 through 1928, imports from the Philippine Islands were not classified separately under various rates of duty; therefore preference for these years was obtained on percentage basis, using 1923 as the base.
[2] Estimated at rate applicable to hats imported.
[3] Preliminary figures.

TABLE 13 (J).—*United States imports of cordage, yarns, threads, twines, etc.,*[1] *from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
				Per cent
June 30, 1910 [2]				
June 30, 1911 [2]				
June 30, 1912 [2]				
June 30, 1913 [2]				
Annual average, 4 years				
June 30, 1914	(3)	0.1	(4)	5.0
June 30, 1915	(3)	.1	(4)	10.0
June 30, 1916				
June 30, 1917	$7	1.2	(4)	7.7
June 30, 1918	130	13.2	0.2	5.7
July 1–Dec. 31, 1918	76	15.6	.2	3.2
Annual average, 5½ years	39	6.1	.1	
Dec. 31, 1919	237	37.1	.4	3.4
Dec. 31, 1920	239	37.3	.2	3.3
Dec. 31, 1921	174	59.0	.3	5.2
Dec. 31, 1922	205	40.9	.3	6.6
Dec. 31, 1923	317	34.0	.4	10.2
Annual average, 5 years	234	39.0	.3	6.0
Dec. 31, 1924	603	61.6	.6	6.6
Dec. 31, 1925	979	66.6	.9	5.3
Dec. 31, 1926	893	57.6	.9	5.5
Dec. 31, 1927	749	47.0	.6	4.9
Dec. 31, 1928	781	47.5	.7	5.7
Annual average, 5 years	801	55.3	.7	5.5
Dec. 31, 1929	960	43.2	.8	6.1
Jan. 1 to June 17, 1930	546	60.7	.8	5.6
June 18 to Dec. 31, 1930 [5]	414	77.4	1.0	16.7

[1] From 1919 to 1929 classified as "cordage, including cables, tarred or untarred."
[2] Imports not recorded.
[3] Less than $500.
[4] Less than one-tenth of 1 per cent.
[5] Preliminary figures.

TABLE 13 (K).—*United States imports of ready-made clothing,[1] etc., of cotton, from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
				Per cent
June 30, 1910	[2]	[3]	[3]	22.2
June 30, 1911	[2]	[3]	[3]	48.9
June 30, 1912	[2]	[3]	[3]	50
June 30, 1913	[2]	[3]	[3]	50.3
Annual average, 4 years	[2]	[3]	[3]	27.1
June 30, 1914	[2]	[3]	[3]	50
June 30, 1915	[2]	[3]	[3]	33.3
June 30, 1916	$7	2.2	[3]	30
June 30, 1917	1	.2	[3]	30
June 30, 1918	29	4.1	[3]	30
July 1–Dec. 31, 1918	11	2.1	[3]	30
Annual average, 5½ years	9	1.4	[3]	30.2
Dec. 31, 1919	40	8.4	0.1	30
Dec. 31, 1920	210	16.1	.2	30
Dec. 31, 1921	122	10.6	.2	30
Dec. 31, 1922	27	2.3	[3]	32.9
Dec. 31, 1923	46	4.8	.1	35
Annual average, 5 years	89	8.7	.1	30.7
Dec. 31, 1924	111	8.0	.1	35
Dec. 31, 1925	119	13.8	.1	35
Dec. 31, 1926	163	17.1	.2	35
Dec. 31, 1927	106	10.6	.1	35
Dec. 31, 1928	109	7.4	.1	35
Annual average, 5 years	121	10.8	.1	35
Dec. 31, 1929	138	11.2	.1	35
Jan. 1 to June 17, 1930	43	6.3	.1	35.0
June 18 to Dec. 31, 1930	50	7.5	.1	37.5

[1] In 1923, approximately 93 per cent of ready-made clothing was imported at the 35 per cent rate of duty; therefore this rate was applied to imports from the Philippine Islands for years 1924 to 1929, inclusive. (See footnote 1, Table (F), p. 87.)

[2] Less than $500.

[3] Less than one-tenth of 1 per cent.

TABLE 13 (L).—*United States imports of coconut-oil cake from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
				Per cent
June 30, 1910 [1]				
June 30, 1911 [1]				
June 30, 1912 [1]				
June 30, 1913 [1]				
Annual average, 4 years				
June 30, 1914 [1]				
June 30, 1915 [1]				
June 30, 1916	$1	95	(2)	(3)
June 30, 1917	(4)	95	(2)	(3)
June 30, 1918	(4)	89.3	(2)	(3)
July 1–Dec. 31, 1918				
Annual average, 5½ years				
Dec. 31, 1919	402	95	0.6	(3)
Dec. 31, 1920	2,353	95	2.1	(3)
Dec. 31, 1921	1,349	95	2.6	(3)
Dec. 31, 1922	840	95	1.4	(3)
Dec. 31, 1923	640	95.3	.8	(3)
Annual average, 5 years	1.117	92.7	1.5	
Dec. 31, 1924	848	95.1	.9	(3)
Dec. 31, 1925	407	87.8	.4	(3)
Dec. 31, 1926	417	93.6	.4	(3)
Dec. 31, 1927	432	91.8	.4	(3)
Dec. 31, 1928	355	79.2	.3	(3)
Annual average, 5 years	492	90.4	.5	
Dec. 31, 1929	377	74.5	.3	(3)
Jan. 1 to June 17, 1930	231	89.5	.3	(3)
June 18 to Dec. 31, 1930 [5]	149	89.8	.4	30.2

[1] Imports not recorded
[2] Less than one-tenth of 1 per cent.
[3] No preference.
[4] Less than $500.
[5] Preliminary figures.

TABLE 13 (M).—*United States imports of buttons of pearl or shell from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
				Per cent
June 30, 1910	[1]	[2]	[2]	62.5
June 30, 1911	$6	5.7	[2]	95.6
June 30, 1912	46	33.3	0.2	91.8
June 30, 1913				
Annual average, 4 years				
June 30, 1914	62	24.4	.3	55.8
June 30, 1915	57	21.3	.2	45.0
June 30, 1916	86	15.8	.3	43.6
June 30, 1917	112	10.6	.3	44.3
June 30, 1918	71	7.8	.1	42.0
July 1–Dec. 31, 1918	31	7.3	.1	35.4
Annual average, 5½ years	76	12.1	.2	44.9
Dec. 31, 1919	113	9.0	.2	42.1
Dec. 31, 1920	233	18.0	.2	37.8
Dec. 31, 1921	129	13.0	.2	38.9
Dec. 31, 1922	155	16.5	.2	67.9
Dec. 31, 1923	220	80.0	.3	90.8
Annual average, 5 years	170	17.6	.2	57.7
Dec. 31, 1924	411	83.9	.4	94.6
Dec. 31, 1925	316	77.5	.3	94.5
Dec. 31, 1926	456	91.0	.4	61.2
Dec. 31, 1927	351	90.6	.3	82.1
Dec. 31, 1928	438	90.1	.4	83.9
Annual average, 5 years	394	86.6	.4	82.3
Dec. 31, 1929	366	87.1	.3	76.4
Jan. 1–June 17, 1930	189	82.9	.3	84.1
June 18–Dec. 31, 1930 [3]	194	93.0	.5	87.9

[1] Less than $500.
[2] Less than one-tenth of 1 per cent.
[3] Preliminary figures.

TABLE 13 (N).—*United States imports of tobacco, filler, leaf,*[1] *and all other, except cigars and cigarettes, from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total quantity from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
					Per cent
June 30, 1910	$1	(2)	(2)	(2)	415.8
June 30, 1911	8	(2)	0.1	(2)	220.6
June 30, 1912	(3)	(2)	(2)	(2)	147.7
June 30, 1913	14	0.1	.2	0.1	236.6
Annual average, 4 years	6	(2)	.1	(2)	192
June 30, 1914	3	(2)	.1	(2)	284.8
June 30, 1915	4	(2)	.1	(2)	392.1
June 30, 1916	18	.1	.2	.1	218.8
June 30, 1917	349	1.4	4.4	.8	227.3
June 30, 1918	1,039	4	11.3	1.3	166.1
July 1–Dec. 31, 1918	1,054	6.3	15.4	2.2	164.6
Annual average, 5½ years	448	2	4.4	1	175
Dec. 31, 1919	139	.3	1.3	.2	178.5
Dec. 31, 1920	445	.9	3.6	.4	164.8
Dec. 31, 1921	193	.4	1.6	.4	167.5
Dec. 31, 1922	83	.2	1.3	.1	324.4
Dec. 31, 1923	245	.5	3.4	.3	466.4
Annual average, 5 years	221	.5	2.3	.3	245.7
Dec. 31, 1924	169	.3	2.1	.2	150.4
Dec. 31, 1925	187	.4	1.5	.2	117
Dec. 31, 1926	197	.4	1.4	.2	162.6
Dec. 31, 1927	253	.5	2.2	.2	223.3
Dec. 31, 1928	521	1.1	5.1	.5	250.2
Annual average, 5 years	265	.5	2.6	.2	200.6
Dec. 31, 1929	443	1	5.4	.4	306.7
Jan. 1–June 17, 1930	268	1.3	7.5	.4	324.2
June 18–Dec. 31, 1930 [4]	260	1.2	5.8	.6	295.4

[1] The annual average value classified as "leaf tobacco" in U. S. Commerce Reports, 1924–1928, is $265,292; the value in 1928 was $521,441.
[2] Less than one-tenth of 1 per cent.
[3] Less than $500.
[4] Preliminary figures.

TABLE 13 (O).—*United States imports of shells, engraved, cut, etc. (including mother-of-pearl), from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
				Per cent
June 30, 1910	(1)	0.3	(2)	35.1
June 30, 1911	(1)	(2)	(2)	35.1
June 30, 1912	(1)	.2	(2)	34.8
June 30, 1913				
Annual average, 4 years				
June 30, 1914	(1)	.3	(2)	25
June 30, 1915	(1)	.3	(2)	24.9
June 30, 1916	$3	12.4	(2)	25
June 30, 1917	(1)	1.7	(2)	25
June 30, 1918	(1)	1.8	(2)	24.9
July 1–Dec. 31, 1918	(1)	4.9	(2)	25
Annual average, 5½ years	1	1.5	(2)	25
Dec. 31, 1919	1	2.9	(2)	25.1
Dec. 31, 1920	3	4.6	(2)	25
Dec. 31, 1921	6	8.7	(2)	25
Dec. 31, 1922	4	5.7	(2)	29
Dec. 31, 1923	8	11.6	(2)	35
Annual average, 5 years	4	7.5	(2)	29.6
Dec. 31, 1924	8	8.4	(2)	35
Dec. 31, 1925	9	7.8	(2)	35
Dec. 31, 1926	7	6.3	(2)	35
Dec. 31, 1927	15	15.2	(2)	35
Dec. 31, 1928	18	24.8	(2)	35
Annual average, 5 years	12	11.6	(2)	35
Dec. 31, 1929	14	31.8	(2)	35
Jan. 1 to June 17, 1930	3	11.6	(2)	35
June 18 to Dec. 31, 1930 [3]	4	22.0	(2)	35

[1] Less than $500. [2] Less than one-tenth of 1 per cent. [3] Preliminary figures.

TABLE 13 (P).—*United States imports of maguey or cantala from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
June 30, 1910 [1]				
June 30, 1911 [1]				
June 30, 1912 [1]				
June 30, 1913 [1]				
Annual average, 4 years				
June 30, 1914 [1]				
June 30, 1915 [1]				
June 30, 1916 [1]				
June 30, 1917 [1]				
June 30, 1918 [1]				
July 1–Dec. 31, 1918 [1]				
Annual average, 5½ years				
Dec. 31, 1919 [1]				
Dec. 31, 1920 [1]				
Dec. 31, 1921 [1]				
Dec. 31, 1922	$17	99.5	(2)	No preference.
Dec. 31, 1923	111	100.0	0.1	Do.
Annual average, 5 years	25	99.9	(2)	
Dec. 31, 1924	56	100.0	.1	Do.
Dec. 31, 1925				
Dec. 31, 1926				
Dec. 31, 1927				
Dec. 31, 1928				
Annual average, 5 years	11	12.9	(2)	
Dec. 31, 1929	48	94.4	(2)	Do.
Jan. 1 to June 30, 1930	79	98.8	.11	Do.
July 1 to Dec. 31, 1930 [3]	22	100.0	.05	Do.

[1] Imports not recorded. [2] Less than one-tenth of 1 per cent. [3] Preliminary figures.

TABLE 13 (Q).—*United States imports of furniture of wood, rattan, reed, etc., except metal, from the Philippines, July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
				Per cent
June 30, 1910	$1	0.1	----------	36.4
June 30, 1911	4	.4	(1)	35
June 30, 1912	6	.8	(1)	35.1
June 30, 1913	8	----------	(1)	35.2
Annual average, 4 years	5	.5	(1)	35.2
June 30, 1914	14	1.2	0.1	15
June 30, 1915	9	1.2	(1)	15
June 30, 1916	13	2	(1)	15
June 30, 1917	15	1.9	(1)	15
June 30, 1918	13	3.7	(1)	15
July 1–Dec. 31, 1918	2	2.9	(1)	15
Annual average, 5½ years	12	1.8	(1)	15
Dec. 31, 1919	16	3.4	(1)	15.6
Dec. 31, 1920	30	1.6	(1)	15.3
Dec. 31, 1921	18	1	(1)	15.5
Dec. 31, 1922	20	1	(1)	23.4
Dec. 31, 1923	15	.7	(1)	51.8
Annual average, 5 years	20	1.2	(1)	22.6
Dec. 31, 1924	7	.2	(1)	39.3
Dec. 31, 1925	23	.7	(1)	50.7
Dec. 31, 1926	8	.2	(1)	45.1
Dec. 31, 1927	----------	----------	----------	----------
Dec. 31, 1928	----------	----------	----------	----------
Annual average, 5 years	8	.2	(1)	47.4
Dec. 31, 1929	----------	----------	----------	----------
Jan. 1–June 17, 1930	----------	----------	----------	----------
June 18–Dec. 31, 1930	----------	----------	----------	----------

[1] Less than one-tenth of 1 per cent.

TABLE 13 (R).—*United States imports of binding twine from the Philippines July 1, 1909–December 31, 1930*

Year ending—	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent preference under United States tariffs
June 30, 1910 [1]				
June 30, 1911 [1]				
June 30, 1912 [1]				
June 30, 1913	(2)	(3)	(3)	No preference.
Annual average, 4 years				
June 30, 1914 [1]				
June 30, 1915 [1]				
June 30, 1916 [1]				
June 30, 1917 [1]				
June 30, 1918 [1]				
July 1–Dec. 31, 1918	(2)	(3)	(3)	Do.
Annual average, 5½ years				
Dec. 31, 1919				
Dec. 31, 1920	$3	0.1	(3)	Do.
Dec. 31, 1921				
Dec. 31, 1922	81	17	0.1	Do.
Dec. 31, 1923	18	1.3	(3)	Do.
Annual average, 5 years	20	1.2	(3)	
Dec. 31, 1924	5	.3	(3)	Do.
Dec. 31, 1925				
Dec. 31, 1926	(2)	(3)	(3)	Do.
Dec. 31, 1927				
Dec. 31, 1928	5	.4	(3)	
Annual average, 5 years	2	.2		
Dec. 31, 1929	5	.3	(3)	Do.
Jan. 1–June 17, 1930	(4)			
June 18–Dec. 31, 1930 [5]	(4)			

[1] Imports not recorded.
[2] Less than $500.
[3] Less than one-tenth of 1 per cent.
[4] Not available Apr. 3.
[5] Preliminary figures.

TABLE 13 (S).—*United States imports of mangrove tanning extract from the Philippines, January 1, 1929–December 31, 1930*

Year ending—	Quantity from Philippines (in thousands of pounds)	Percentage of total quantity from all sources	Value from Philippines (in thousands of dollars)	Percentage of total value from all sources	Percentage of total imports from Philippine Islands consisting of this commodity	Average ad valorem equivalent of preference under United States tariffs
Dec. 31, 1929	6,752	74.2	$169	64.6	0.13	15.0
Jan. 1 to June 17, 1930	3,846	83.3	108	79.3	.16	15.0
June 18 to Dec. 31, 1930	5,651	86.0	136	81.4	.32	15.0

TABLE 14.—*Exportation of sugar from the Philippines to the United States and to all countries, 1885 to 1894 and 1899 to 1929*

Year ended Dec. 31—	To the United States	To all countries	Year ended Dec. 31—	To the United States	To all countries
	Long tons	*Long tons*		*Long tons*	*Long tons*
1885	132,918	200,995	1910	99,109	119,552
1886	115,299	182,017	1911	184,693	205,741
1887	109,680	168,056	1912	131,763	193,961
1888	82,396	158,444	1913	30,231	154,847
1889	123,775	224,858	Average, 4 years	111,449	168,525
Average, 5 years	112,814	186,874	1914	166,851	232,760
1890	33,585	142,552	1915	81,532	207,678
1891	46,188	136,033	1916	129,801	332,156
1892	45,254	248,803	1917	61,392	202,654
1893	9,932	257,389	1918 [2]	104,404	268,940
1894 [1]	11,280	207,317	Average, 5 years	108,796	248,837
Average, 5 years	29,248	198,419	1919	31,651	133,910
1899 [3]	21,542	84,471	1920	121,979	177,491
1900	2,119	64,161	1921	148,100	285,295
1901	5,143	55,974	1922	240,982	356,350
1902	5,039	97,038	1923	226,911	267,685
1903	28,852	83,960	Average, 5 years	153,925	244,146
1904	25,489	85,677	1924	296,113	352,175
Average, 6 years	14,697	78,547	1925	456,656	538,190
1905	42,903	106,784	1926	335,912	404,732
1906	11,670	127,408	1927	500,284	544,579
1907	10,815	125,896	1928	525,786	560,931
1908	45,969	142,448	Average, 5 years	422,950	480,122
1909	52,234	127,284	1929	660,352	684,873
Average, 5 years	32,718	125,964			

Source: Annual Reports of the Insular Collector of Customs, Manila, P. I.

[1] 1895–1898 was generally a period of disturbance in the Philippines; insurrection against Spain and Spanish-American War.

[2] Centrifugal sugar not predominant until 1918.

[3] 1899 first calendar year of American occupation.

TABLE 15.—*Philippine area under sugar cultivation, yield per acre in raw sugar, and fertilizer and sugar machinery imported into the Philippines from all sources, July 1, 1910–December 31, 1929*

	Area cultivated in sugarcane (acres) [2]	Raw-sugar yield per acre (pounds)	Total importation of fertilizer (value) [3]	Total importation of sugar machinery (value) [3]
Year ended June 30 [1]:				
1910	205,425	1,638	$11,116	$4,205
1911	297,173	1,809	29,733	507,902
1912	405,725	1,317	38,796	361,013
1913	435,011	1,476	18,608	534,893
July 1 to Dec. 31, 1913	----------	----------	30,973	668,768
Calendar year:				
1914	418,507	1,825	54,925	170,030
1915	427,537	1,857	28,881	114,619
1916	444,010	1,739	46,976	124,587
1917	459,250	1,740	11,887	373,356
1918	507,612	1,721	30,224	469,489
1919	494,492	1,833	31,414	3,375,164
1920	487,485	1,915	162,578	2,431,974
1921	596,122	1,978	92,438	1,782,071
1922	594,825	1,793	200,520	447,021
1923	561,406	1,693	611,953	199,471
1924	561,159	1,886	2,160,062	1,107,962
1925	591,491	2,636	1,988,125	1,694,782
1926	572,645	2,122	968,194	708,574
1927	568,254	2,616	1,910,606	1,266,037
1928	585,390	2,760	1,843,184	2,831,220
1929	[4] 636,544	[4] 2,934	2,881,624	1,606,226

Source: Area cultivated and yield per acre from Statistical Bulletin of the Philippine Islands, based on data from Philippine Bulletin of Agriculture; importations of fertilizer and sugar machinery, from Annual Reports of the Insular Collector of Customs, Manila, P. I.

[1] Except for imports of fertilizer and sugar machinery after July 1, 1913.

[2] Converted from hectares at 2.47.

[3] The amounts in these columns are intended to indicate the general trend of these importations, without suggesting any definite relation to the extent of cultivation or yield for that year.

[4] Annual report of the Governor General of the Philippine Islands for 1929, p. 167.

TABLE 16.—*United States imports of duty-free cane sugar from the Philippines, July 1, 1909–December 31, 1930* [1]

Year ended—	Quantity from Philippine Islands (long tons) [2]	Percentage of total quantity from all sources [3]	Value of sugar from Philippine Islands (thousands of dollars)	Percentage of total value from all sources [3]	Percentage of total imports from Philippine Islands consisting of sugar value	Percentage of total Philippine Islands sugar exports by value [4]	Import duties waived on sugar from Philippine Islands taken by United States [5]
June 30, 1910 [6]	78,363	4.3	$4,260	4.1	24.6	----	$2,562,778
June 30, 1911	102,639	5.6	6,487	6.3	37.3	----	3,356,711
June 30, 1912	195,812	10.6	11,242	9.8	48.3	----	4,674,989
June 30, 1913 [7]	90,697	5.1	4,593	5.1	21.9	----	2,180,210
Annual average, 4 years	116,878	6.4	6,645	6.5	33.7	[8] 70.8	3,193,672
June 30, 1914	50,651	2.1	2,556	2.4	14.1	----	1,056,265
June 30, 1915	145,924	6.2	7,511	4.6	31.3	----	3,491,761
June 30, 1916	96,974	3.8	6,389	3.1	22.6	----	2,320,461
June 30, 1917	120,539	4.8	8,479	3.5	20.0	----	2,884,338
June 30, 1918	77,500	3.5	7,913	3.3	10.1	----	1,854,474
July 1–Dec. 31, 1918	23,222	6.0	2,396	2.8	5.1	----	561,056
Annual average, 5½ years	93,602	4.0	6,408	3.4	14.8	[9] 51.7	2,212,428
Dec. 31, 1919	78,515	2.5	7,941	2.0	12.0	25.3	1,906,414
Dec. 31, 1920	130,230	3.8	42,417	4.4	37.6	79.3	3,128,518
Dec. 31, 1921 [10]	147,212	5.6	17,440	7.0	33.4	66.1	5,276,076
Dec. 31, 1922 [11]	245,365	5.7	19,299	7.7	31.3	78.2	9,449,894
Dec. 31, 1923	212,347	6.2	29,641	7.8	38.1	88.0	9,003,050
Annual average, 5 years	162,734	4.8	23,347	5.2	31.5	73.4	5,752,790
Dec. 31, 1924	302,685	8.1	39,465	10.8	40.6	89.5	11,965,589
Dec. 31, 1925	439,977	11.1	42,130	17.2	37.7	90.9	17,392,960
Dec. 31, 1926	339,675	8.4	29,606	13.3	28.5	90.5	13,427,851
Dec. 31, 1927	473,674	12.5	47,598	18.4	41.0	95.2	18,725,059
Dec. 31, 1928	513,406	14.7	46,873	22.4	40.5	96.1	20,295,738
Annual average, 5 years	413,883	10.9	41,134	15.8	37.8	92.7	16,361,439
Dec. 31, 1929	634,578	19.4	49,692	35.9	50.4	98.0	25,085,852
Dec. 31, 1930	708,689	20.4	51,398	34.4	47.0	[12]	29,363,184

[1] Foreign Commerce and Navigation of the United States, Department of Commerce.

[2] Not adjusted to polarization basis; in 1928 Philippine sugar shipments to United States by quantity were 98.5 per cent centrifugal, 1.49 per cent refined, and 0.01 per cent muscovado.

[3] Computed on basis of imports for consumption from all sources, including receipts from Hawaii, Porto Rico, and the Philippines.

[4] Annual reports of the Insular Collector of Customs, Manila, P. I.

[5] Computed at the effective rates of duty (the preferential rates on Cuban sugar).

[6] Tariff act of Aug. 5, 1909: Preference to Philippine sugar at rate on Cuban 96° centr., 1.348 cents per pound; duty-free admission of Philippine sugar limited to 300,000 long tons.

[7] Tariff act of Oct. 3, 1913: Preference to Philippine sugar at rate on Cuban 96° centr., 1.0048 cents per pound; limitation on duty-free admission of Philippine sugar removed.

[8] Average of 4 calendar years, 1910–1913.

[9] Average of 5 calendar years, 1914–1918.

[10] Emergency tariff act of May 27, 1921: Preference to Philippine sugar at rate on Cuban 96° centr., 1.60 cents per pound.

[11] Tariff act of Sept. 21, 1922: Preference to Philippine sugar at rate on Cuban 96° centr., 1.7648 cents per pound.

[12] Basic information not available as of Apr. 3, 1930.

TABLE 17.—*Total consumption of sugar in continental United States, together with sources of supply and the quantity and percentage from each source, 1913 to 1930* [1]

[Refined and/or consumption value]

Year	Total consumption	Source of supply										Per capita consumption
		Continental United States (cane and beet) [2]		Hawaii, Porto Rico, and Virgin Islands (duty-free cane)		Philippine Islands (duty-free cane)		Cuba preferential		Other countries full duty		
	Short tons	Short tons	Per cent of total	Short tons	Per cent of total	Short tons	Per cent of total	Short tons	Per cent of total	Short tons	Per cent of total	Pounds
1913	4,192,316	954,769	22.77	[3] 938,177	22.38	49,974	1.19	2,229,731	53.19	19,665	0.47	85.40
1914	4,212,126	883,113	20.97	878,678	20.86	135,393	3.21	2,261,116	53.68	53,825	1.28	84.29
1915	4,257,715	1,130,066	26.55	906,722	21.30	134,626	3.16	2,062,594	48.44	23,216	.55	83.83
1916	4,097,640	1,051,942	25.67	1,037,906	25.33	124,524	3.04	1,866,534	45.55	16,734	.41	79.34
1917	4,125,631	1,198,439	29.04	1,151,779	27.92	81,580	1.98	1,687,701	40.91	6,132	.15	78.58
1918	3,915,079	877,522	22.41	856,787	21.89	52,177	1.33	2,106,993	53.82	21,619	.55	73.36
1919	4,555,792	1,176,427	25.82	907,190	19.92	81,212	1.78	2,326,297	51.06	64,667	1.42	85.43
1920	4,574,832	619,546	13.55	824,295	18.02	127,734	2.79	2,382,756	52.08	620,502	13.56	86.56
1921	4,600,206	1,368,667	29.75	964,604	20.97	146,908	3.19	2,090,091	45.44	29,936	.65	84.47
1922	5,703,890	1,313,732	23.03	870,685	15.26	240,183	4.21	3,237,440	56.76	41,850	.74	103.18
1923	5,354,366	1,229,337	22.96	797,972	14.91	221,677	4.14	2,966,010	55.39	139,370	2.60	95.63
1924	5,437,017	927,515	17.06	951,947	17.51	297,241	5.47	3,163,054	58.18	97,260	1.78	95.90
1925	6,171,267	1,135,384	18.40	1,286,434	20.84	453,462	7.35	3,258,120	52.80	37,867	.61	107.50
1926	6,351,897	1,058,032	16.66	1,212,806	19.10	350,250	5.51	[4] 3,686,253	58.03	44,556	.70	109.30
1927	5,932,696	918,785	15.49	1,258,544	21.21	486,687	8.20	[4] 3,262,446	54.99	6,234	.11	100.95
1928	6,207,752	1,292,543	20.82	1,428,644	23.01	533,200	8.59	[5] 2,920,410	47.05	32,955	.53	104.27
1929	6,508,297	1,136,772	17.46	1,301,690	20.01	677,041	10.40	[6] 3,376,345	51.88	16,449	.25	108.13
1930	6,271,303	1,250,489	19.94	1,487,690	23.72	751,852	11.99	[6] 2,752,745	43.89	28,527	.46	99.37

TABLE 18.—*Per capita consumption of sugar in continental United States together with sources of supply and quantity from each source, 1913 to 1930* [1]

Year	Source of supply					
	Per capita consumption	Continental United States (cane and beet) [2]	Hawaii, Porto Rico, and Virgin Islands (duty-free cane)	Philippine Islands (duty-free cane)	Cuba preferential	Other countries full duty
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1913	85.4	19.4	[3] 19.1	1.1	45.4	0.4
1914	84.3	17.7	17.6	2.7	45.2	1.1
1915	83.8	22.2	17.9	2.6	40.6	.5
1916	79.3	20.4	20.1	2.4	36.1	.3
1917	78.6	22.8	21.9	1.7	32.1	.1
1918	73.4	16.4	16.1	1.0	39.5	.4
1919	85.4	22.1	17.0	1.5	43.6	1.2
1920	86.6	11.7	15.7	2.4	45.1	11.7
1921	84.5	25.1	17.7	2.7	38.5	.5
1922	103.2	23.8	15.7	4.3	58.6	.8
1923	95.6	22.0	14.2	4.0	53.0	2.4
1924	95.9	16.4	16.8	5.2	55.8	1.7
1925	107.5	19.7	22.4	7.9	56.8	.7
1926	109.3	18.2	20.9	6.0	[4] 63.4	.8
1927	101.0	15.6	21.4	8.4	[4] 55.5	.1
1928	104.3	21.7	24.0	9.0	[5] 49.0	.6
1929	108.1	18.9	21.6	11.2	[6] 56.1	.3
1930	99.4	19.8	23.6	11.9	[6] 43.6	.5

[1] Basic data are consumption figures as reported by Willett & Gray's Weekly Statistical Sugar Trade Journal.

[2] Includes small quantities of domestic maple sugar and sugar made from duty-free molasses.

[3] Virgin Islands not included.

[4] Production of sugar in Cuba was limited by presidential decree to 4,500,000 long tons in 1926–27 and to 4,000,000 long tons in 1927–28.

[5] Exports of sugar from Cuba to the United States were limited by presidential decree to not over 3,000,000 long tons.

[6] Cuban Export Corporation deflected sugar to countries other than the United States in an effort to raise the price of sugar.

TABLE 19.—*Cane sugar: Imports for consumption into the United States from the Philippines, by customs districts, 1923 to 1928 and 1929*

Customs district	1923		1924		1925		1926	
	Short tons	Per cent	Short tons	Per cent	Short tons	Per cent	Short tons	Per cent
Atlantic coast:								
Maryland	49,642	20.89	95,447	28.16	114,677	23.27	87,462	22.99
Philadelphia	52,350	22.03	105,917	31.24	194,968	39.57	129,753	34.11
New York	51,710	21.75	73,267	21.61	89,482	18.16	80,495	21.16
Massachusetts	1,600	.67	----	----	----	----	----	----
Total	155,302	65.34	274,631	81.01	399,127	81.00	297,710	78.26
Pacific coast:								
San Francisco	81,721	34.38	61,968	18.28	82,633	16.77	66,253	17.41
Los Angeles	----	----	985	.29	1,396	.28	442	.12
Washington	456	.19	1,078	.32	1,503	.30	771	.20
Oregon	200	.09	345	.10	882	.18	481	.13
Total	82,377	34.66	64,376	18.99	86,414	17.53	67,947	17.86
Gulf coast:								
New Orleans	----	----	----	----	3,486	.71	14,779	3.88
Galveston	----	----	----	----	3,747	.76	----	----
Total	----	----	----	----	7,233	1.47	14,779	3.88
Grand total	237,679	100.00	339,007	100.00	492,774	100.00	380,436	100.00

Customs district	1927		1928		6-year average, 1923–1928		1929	
	Short tons	Per cent	Short tons	Per cent	Short tons	Per cent	Short tons	Per cent
Atlantic coast:								
Maryland	147,563	27.82	209,509	36.44	117,383	27.56	234,672	33.02
Philadelphia	180,911	34.10	129,277	22.48	132,196	31.04	232,193	32.67
New York	138,136	26.04	114,609	19.93	91,283	21.43	156,228	21.98
Virginia	----	----	----	----	----	----	4,482	.63
Massachusetts	----	----	----	----	267	.06	----	----
Total	466,610	87.96	453,395	78.85	341,129	80.09	627,575	88.30
Pacific coast:								
San Francisco	60,748	11.45	78,994	13.73	72,053	16.92	46,293	6.51
Los Angeles	232	.04	1,483	.26	756	.18	5,505	.78
Washington	424	.08	2,243	.39	1,079	.25	2,717	.38
Oregon	101	.02	1,254	.22	544	.13	1,628	.23
Hawaii	----	----	----	----	----	----	(1)	----
Total	61,505	11.59	83,974	14.60	74,432	17.48	56,143	7.90
Gulf coast:								
New Orleans	2,400	.45	37,646	6.55	9,718	2.28	27,009	3.80
Galveston	----	----	----	----	625	.15	----	----
Total	2,400	.45	37,646	6.55	10,343	2.43	27,009	3.80
Grand total	530,515	100.00	575,015	100.00	425,904	100.00	710,727	100.00

[1] 200 pounds.

TABLE 20.—*Cane sugar: Imports for consumption into the United States from the Philippines, by months, 1923 to 1928 and 1929*

Month	1923		1924		1925		1926	
	Short tons	Per cent	Short tons	Per cent	Short tons	Per cent	Short tons	Per cent
January	5,370	2.26	18,894	5.57	9,421	1.91	18,202	4.78
February	9,488	3.99	10,336	3.05	30,797	6.25	28,518	7.50
March	29,573	12.44	30,845	9.10	52,953	10.74	33,189	8.72
April	32,139	13.52	56,028	16.53	30,377	6.16	72,091	18.95
May	16,719	7.03	51,396	15.16	76,138	15.45	69,220	18.19
June	49,814	20.96	53,146	15.68	64,840	13.16	60,793	15.98
July	24,404	10.27	55,646	16.41	79,315	16.10	40,388	10.62
August	49,521	20.84	22,126	6.53	40,345	8.19	19,844	5.22
September	12,584	5.29	19,629	5.79	56,660	11.50	16,759	4.41
October	4,346	1.83	11,029	3.25	35,554	7.21	13,368	3.51
November	115	.05	2,971	.88	8,702	1.77	5,739	1.51
December	3,606	1.52	6,961	2.05	7,672	1.56	2,325	.61
Total	237,679	100.00	339,007	100.00	492,774	100.00	380,436	100.00

Month	1927		1928		6-year average, by months, 1923–1928		1929	
	Short tons	Per cent	Short tons	Per cent	Short tons	Per cent	Short tons	Per cent
January	10,127	1.91	15,958	2.77	12,995	3.05	17,418	2.45
February	39,763	7.49	70,920	12.33	31,637	7.43	54,826	7.71
March	65,562	12.36	87,965	15.30	50,014	11.74	44,745	6.30
April	75,203	14.18	82,396	14.33	58,039	13.63	133,099	18.73
May	71,773	13.53	72,569	12.62	59,636	14.00	118,007	16.60
June	66,895	12.61	81,859	14.23	62,891	14.76	73,253	10.31
July	54,971	10.36	55,983	9.74	51,784	12.16	90,278	12.70
August	54,200	10.22	33,407	5.81	36,574	8.73	82,241	11.57
September	40,585	7.65	38,844	6.76	30,844	7.10	38,240	5.38
October	23,938	4.51	14,765	2.57	17,167	4.03	30,664	4.31
November	20,860	3.93	11,117	1.93	8,251	1.94	18,250	2.57
December	6,638	1.25	9,232	1.61	6,072	1.43	9,706	1.37
Total	530,515	100.00	575,015	100.00	425,904	100.00	710,727	100.00

TABLE 21.—*Approximate average tariff advantage of Philippine over Cuban sugar under United States tariff acts* [1]

	Cuban sugar, 96° centrifugal			Philippine sugar, 96° centrifugal	
	(A) Average c. and f. price, New York [2]	(B) Specific rate of duty [3]	(C) Average c. and f. duty-paid price, New York	(D) Average Cuban price duty paid (col. C) less freight differential; i. e. comparative value of Philippine sugar [4]	(E) Average ad valorem equivalent advantage [5]
	Cents per lb.	*Cents per lb.*	*Cents per lb.*	*Cents per lb.*	*Per cent*
1919	6.36	1	7.36	7.03	10.5
1920	11.96	1	12.96	12.53	4.7
1921	3.46	1.60	5.06	4.86	40.5
1922	3.	1.60	4.60	4.41	47.0
Simple average					25.7
1923	5.22	1.76	6.98	6.83	30.8
1924	4.17	1.76	5.93	5.74	37.6
1925	2.56	1.76	4.32	4.12	60.9
1926	2.59	1.76	4.35	4.18	61.4
1927	3.04	1.76	4.80	4.66	53.3
1928	2.45	1.76	4.21	4.03	64.5
Simple average					51.4
1929	1.99	1.76	3.75	3.56	78.9

[1] Computed on basis of average Cuban c. and f. prices at New York.
[2] Obtained by averaging weekly quotations given in Willett & Gray's Weekly Statistical Sugar Trade Journal.
[3] Rates of the emergency tariff of 1921 used throughout both 1921 and 1922.
[4] In computing column (D), the difference between typical freight rates from the Philippines and from Cuba has been subtracted from the corresponding prices in column (C); the Philippine freight rate to New York is always higher than the Cuban rate to New York.
[5] Column (D), minus (A), divided by (A).

TABLE 22.—*Area planted to coconuts, yield per acre, and trees bearing in the Philippines, 1910–1928*

Year ended June 30	Area planted in coconuts	Coconuts yield per acre	Trees bearing	Year ended June 30	Area planted in coconuts	Coconuts yield per acre	Trees bearing
	Acres	*Number*	*Number*		*Acres*	*Number*	*Number*
1910	405, 557	2, 313		1920	980, 664	1, 539	43, 585, 408
1911	514, 936	1, 878		1921	1, 032, 359	1, 499	46, 459, 181
1912	569, 785	1, 828		1922	1, 098, 088	1, 336	49, 379, 910
1913	551, 334	1, 417		1923	1, 127, 407	1, 344	49, 809, 380
1914	607, 501	973		1924	1, 137, 287	1, 386	51, 154, 600
1915	652, 446	1, 327		1925	1, 165, 964	1, 359	53, 165, 880
1916	668, 799	1, 079		1926	1, 198, 024	1, 358	54, 650, 430
1917	744, 013	1, 813		1927	1, 235, 025	1, 457	58, 414, 390
1918	828, 937	1, 183		1928	1, 273, 310	1, 498	61, 068, 390
1919	921, 930	1, 578		1929			[1] 65, 082, 800

Source: Statistical Bulletin of the Philippine Islands.

[1] Report of the Secretary of Agriculture and Natural Resources. (Annual Report of the Governor General of the Philippine Islands for 1929, p. 167.)

TABLE 23.—*Quantities of Philippine exports of coconut oil and copra, 1899–1929* [1]

[Expressed in thousands of pounds; i. e., 000 omitted]

Calendar year	To all countries			To the United States					
	Coconut oil	Copra	Total in terms of oil [2]	Coconut oil	Per cent of total to all countries taken by United States	Copra	Per cent of total to all countries taken by United States	Total in terms of oil [2]	Per cent of total to all countries in terms of oil taken by United States
1899		33, 848	21, 541						
1900	[3]	143, 059	91, 043			228	0. 16	145	0. 16
1901	[3]	71, 689	45, 623						
1902	7	130, 572	83, 103			130	. 10	83	. 10
1903	2	181, 117	115, 265			388	. 21	247	. 21
1904	[3]	85, 037	54, 118	[3]		226	. 27	144	. 27
1905	23	122, 903	78, 238			226	. 18	144	. 18
1906	1, 441	133, 568	86, 444	829	57. 53	833	. 62	1, 359	1. 57
1907	1, 807	129, 239	84, 035	342	18. 93	4, 650	3. 60	3, 301	3. 93
1908	6, 288	214, 937	143, 074	3, 861	61. 40	8, 334	3. 88	9, 165	6. 41
1909		240, 375	152, 975			13, 103	5. 45	8, 339	5. 45
1910	[3]	265, 619	169, 040			13, 737	5. 92	10, 015	5. 92
1911		313, 378	199, 434			33, 530	10. 70	21, 338	10. 70
1912	1	314, 801	200, 340			46, 722	14. 84	29, 734	14. 84
1913	11, 046	181, 261	126, 400	10, 594	93. 91	22, 107	12. 20	24, 663	19. 51
1914	26, 330	192, 560	148, 875	26, 228	99. 61	40, 083	20. 82	51, 737	34. 75
1915	29, 683	306, 644	224, 831	29, 471	99. 29	46, 777	15. 25	59, 240	26. 35
1916	35, 473	159, 342	136, 880	33, 747	93. 13	78, 198	49. 08	83, 512	61. 01
1917	99, 644	203, 221	228, 974	99, 308	99. 66	150, 473	74. 04	195, 069	85. 19
1918	254, 148	121, 389	331, 400	250, 299	98. 49	121, 389	100. 00	327, 551	98. 84
1919	308, 517	55, 322	343, 724	188, 222	61. 01	5, 101	9. 22	191, 468	55. 70
1920	171, 014	56, 885	207, 216	158, 610	92. 75	3, 100	5. 56	160, 621	77. 51
1921	199, 053	331, 429	409, 979	[4] 177, 480	89. 16	116, 686	35. 21	251, 739	[4] 61. 40
1922	236, 351	381, 510	479, 144	235, 110	99. 47	196, 999	31. 64	360, 480	75. 23
1923	196, 613	456, 642	487, 220	186, 836	93. 03	284, 963	62. 40	368, 186	73. 57
1924	246, 097	345, 597	466, 035	243, 734	99. 04	237, 054	68. 59	394, 595	84. 67
1925	229, 560	323, 434	435, 393	212, 466	92. 55	256, 082	79. 18	373, 436	86. 23
1926	258, 579	383, 647	502, 732	233, 379	97. 99	284, 572	74. 18	434, 480	86. 42
1927	319, 232	439, 419	598, 878	312, 146	97. 78	347, 946	79. 18	533, 579	89. 10
1928	313, 589	516, 795	642, 477	310, 482	99. 01	402, 529	77. 89	566, 651	88. 20
1929	420, 019	382, 658	663, 543	415, 981	99. 04	285, 756	74 68	597, 836	90. 10

[1] Annual Reports of the Insular Collector of Customs, Manila, P. I.

[2] Copra converted to oil equivalents at 0.6364.

[3] Less than 1,000 pounds.

[4] Prior to emergency tariff act of May 27, 1921, coconut oil was duty free in the United States, regardless of origin, unless deodorized or refined.

TABLE 24.—*Philippine cigar exports, 1899–1929* [1]

Year ended Dec. 31	To all countries			To the United States				To countries other than the United States		
	Quantity	Value	Average value per thousand	Quantity	Value	Average value per thousand	Per cent of total value of cigars exported taken by United States	Quantity	Value	Average value per thousand
	Thousands			*Thousands*				*Thousands*		
1899	196,090	$945,699	$4.82	708	$3,405	$4.81	0.36	195,382	$942,294	$4.82
1900	172,659	1,158,417	6.71	1,376	5,662	4.11	.49	171,283	1,152,755	6.73
1901	238,475	1,832,449	7.68	72	908	12.61	.05	238,403	1,831,541	7.68
1902	117,852	988,518	8.39	698	11,006	15.77	1.11	117,154	977,512	8.34
1903	118,947	961,355	8.08	107	1,900	17.76	.20	118,840	959,455	8.07
1904	104,753	1,005,895	9.60	57	1,046	18.35	.10	104,696	1,004,849	9.60
1905	95,739	892,561	9.32	728	14,114	19.39	1.58	95,011	878,447	9.25
1906	108,635	1,004,007	9.24	1,690	29,670	17.56	2.96	106,945	974,337	9.11
1907	114,665	1,063,382	9.28	1,526	24,200	15.86	2.28	113,139	1,039,182	9.18
1908	115,881	1,059,328	9.14	1,182	18,376	15.55	1.73	114,699	1,040,952	9.08
1909	151,457	1,754,529	11.58	37,076	737,396	19.89	42.03	114,381	1,017,133	8.89
1910	184,407	2,759,661	14.96	61,526	1,560,799	25.36	56.54	122,881	1,198,862	9.76
1911	134,830	1,901,863	14.11	38,112	902,378	23.68	47.45	96,718	999,485	10.33
1912	190,842	3,092,064	16.20	90,000	1,958,321	21.76	63.33	100,842	1,133,743	11.24
1913	191,762	3,012,234	15.71	71,513	1,642,888	22.97	54.54	120,249	1,369,346	11.39
1914	154,753	2,315,139	14.96	56,205	1,200,126	21.35	51.84	98,548	1,115,033	11.31
1915	134,648	2,057,303	15.28	61,170	1,151,222	18.82	55.96	73,478	906,081	12.33
1916	193,026	2,844,376	14.74	111,478	2,033,121	18.24	71.48	81,548	811,255	9.95
1917	284,525	4,794,096	16.85	202,199	3,862,983	19.10	80.58	82,326	931,113	11.31
1918	360,145	7,126,319	19.79	248,748	5,682,838	22.85	79.74	111,397	1,443,481	12.96
1919	392,339	9,078,854	23.14	263,943	6,914,319	26.20	76.16	128,396	2,164,535	16.86
1920	421,545	12,721,138	30.18	316,863	10,546,304	33.28	82.90	104,682	2,174,834	20,78
1921	154,879	3,227,443	20.84	68,217	1,980,251	29.03	61.36	86,662	1,247,192	14.39
1922	300,485	5,801,110	19.31	173,317	4,259,788	24.58	73.43	127,168	1,541,322	12.12
1923	280,755	6,169,944	21.98	219,898	5,149,114	23.42	83.45	60,857	1,020,830	16.77
1924	218,598	5,404,662	24.72	175,762	4,419,782	25.15	81.78	42,836	984,880	22.99
1925	252,553	6,043,976	23.93	207,280	5,025,596	24.25	83.15	45,273	1,018,380	22.49
1926	247,710	5,661,688	22.86	195,326	4,569,218	23.39	80.70	52,384	1,092,470	20.86
1927	207,579	4,652,258	22.41	167,300	3,768,916	22.53	81.01	40,279	883,342	21.93
1928	220,884	4,765,140	21.58	179,570	3,855,672	21.47	80.91	41,314	909,468	22.01
1929	188,333	3,824,649	20.31	150,945	3,013,355	19.96	78.79	37,388	811,294	21.70

[1] Annual Reports of the Insular Collector of Customs, Manila, P. I.

TABLE 25.—*Philippine exports and overseas shipments of manila fiber (abacá), 1890–1894, 1899–1901, 1902–1913, 1914–1929*

[Values, other than average values, in thousands of dollars; that is, 000 omitted]

Calendar year	Total quantity shipped overseas	Total value shipped overseas	Quantity shipped to United States	Per cent of total exports to all countries taken by United States		Value shipped to United States
				Quantity	Value	
	Metric tons (2,204.6 lbs.)		*Metric tons (2,204.6 lbs.)*			
1890–1894						
Annual average, 5 years	78,569	$7,815	[1] 45,297	58	$51	[2] $3,989
1899	70,153	7,994	[1] 43,157	62	60	[2] 4,796
1900	90,869	13,290	[1] 44,377	49	45	[2] 6,016
1901	126,245	15,977	[1] 44,435	35	38	[2] 5,994
Annual average, 3 years	95,756	12,420	[1] 43,990	46	45	[2] 5,602
1902	113,284	19,291	61,350	54	57	11,089
1903	139,956	22,001	71,031	51	53	11,762
1904	123,583	20,944	60,352	48	51	10,687
1905	130,437	21,757	72,919	56	58	12,648
1906	104,078	19,613	56,757	55	57	11,156
1907	117,241	19,639	52,454	45	47	9,312
Annual average, 6 years	121,430	20,541	62,477	51	54	11,109
1908	131,382	16,502	61,310	47	47	7,798
1909	167,953	16,896	101,533	60	62	10,434
1910	163,173	16,475	75,528	46	51	8,397
1911	148,202	14,485	63,580	43	47	6,768
1912	175,137	22,076	76,006	43	49	10,779
1913	119,821	21,121	47,144	39	46	9,787
Annual average, 6 years	150,945	17,926	70,850	47	52	8,994
1914	116,387	19,195	50,140	43	50	9,619
1915	142,010	21,339	69,251	49	53	11,351
1916	137,326	26,692	66,344	48	51	13,640
1917	169,435	46,808	95,580	56	63	29,646
1918	169,260	58,192	86,824	51	56	32,734
1919	121,248	26,852	65,509	54	60	16,195
Annual average, 6 years	142,611	33,180	72,275	51	57	18,864
1920	141,486	35,862	67,042	47	57	20,614
1921	104,402	12,985	34,558	34	42	5,457
1922	172,027	19,541	83,544	49	53	10,332
1923	190,442	24,952	82,470	43	51	12,635
1924	177,312	29,950	77,219	44	51	15,267
1925	151,024	35,522	59,922	40	51	18,201
1926	154,043	32,142	61,859	40	51	16,301
Annual average, 7 years	155,248	27,279	66,659	43	52	14,115
1927	148,826	29,687	48,546	33	41	12,262
1928	174,796	26,594	51,112	29	36	9,527
1929	189,424	28,420	67,904	36	43	12,276

Source: Annual Reports of the Insular Collector of Customs, Manila, P. I.

[1] United States receipts from Philippine Islands, United Kingdom, and other points from which reconsigned to United States ports, fiscal years 1890–1894 and 1899–1901.

[2] Adjusted by multiplying United States receipts in metric tons fiscal years 1890–1894 and 1899–1901, by average Philippine shipping-point value per ton manifested to the United States direct, calendar years 1890–1894 and 1899–1901.

TABLE 25.—*Philippine exports and overseas shipments of manila fiber (abacá), 1890–1894, 1899–1901, 1902–1913, 1914–1929*— Continued

[Values, other than average values, in thousands of dollars; that is, 000 omitted]

Calendar year	Average value per metric ton of shipments to—			Quantity exported to non-American destination	Value exported to non-American destinations	Equivalent per cent ad valorem of export duty to non-American destinations
	United States (direct)	Non-American destinations	All destinations (overseas)			
				Metric tons (2,204.6 lbs.)		
1890–1894						
Annual average, 5 years	$88.07	[3] $104.33	$99.48	[4] 55,093	$5,748	
1899	111.12	[3] 115.73	113.95	[4] 43,013	4,978	
1900	135.57	[3] 149.40	146.26	[4] 70,240	10,493	
1901	134.89	[3] 123.86	126.55	[4] 95,424	11,820	
Annual average, 3 years	127.35	[3] 130.78	129.70	[4] 69,559	9,097	[5] 2.95
1902	180.75	157.93	170.29	51,934	8,202	4.75
1903	165.59	148.57	157.23	68,925	10,239	5.05
1904	177.08	162.21	169.47	63,231	10,257	4.62
1905	173.45	158.02	166.80	57,518	9,109	4.75
1906	196.56	178.72	188.44	47,321	8,457	4.20
1907	177.53	159.40	167.94	64,787	10,327	4.71
Annual average, 6 years	177.81	160.00	169.16	58,953	9,432	4.69
1908	127.19	124.23	125.60	70,072	8,704	6.04
1909	102.71	97.29	100.60	66,420	6,462	7.71
1910	111.18	92.17	100.96	87,645	8,078	8.14
1911	106.45	91.19	97.74	84,622	7,717	8.22
1912	141.82	113.96	126.05	99,131	11,297	6.58
1913	207.60	155.95	176.27	72,677	11,334	4.81
Annual average, 6 years	126.94	111.52	114.58	80,094	8,932	6.73
1914	191.84	144.55	164.92	66,247	9,576	
1915	163.91	137.26	150.26	72,759	9,988	
1916	205.60	183.88	194.35	70,982	13,052	
1917	341.45	232.37	276.25	73,855	17,162	
1918	377.00	308.82	343.80	82,436	25,458	
1919	247.22	191.19	221.46	55,739	10,657	
Annual average, 6 years	261.01	203.53	232.66	70,336	14,315	
1920	307.48	204.83	253.46	74,444	15,248	
1921	157.91	114.33	129.32	65,844	7,528	
1922	123.67	104.08	113.58	88,483	9,209	
1923	153.21	114.07	131.02	107,972	12,317	
1924	197.71	146.69	168.91	100,093	14,683	
1925	303.74	190.13	235.20	91,102	17,321	
1926	263.52	171.84	208.65	92,184	15,841	
Annual average, 7 years	211.75	148.59	175.71	88,589	13,164	
1927	252.59	173.76	199.48	100,280	17,425	
1928	186.40	137.98	152.14	123,684	17,067	
1929	180.78	132.85	150.03	121,520	16,144	

[3] Includes the value of certain manila hemp fiber manifested to non-American countries and subsequently reconsigned to United States ports.

[4] Includes certain quantities of manila fiber manifested to non-American countries and subsequently reconsigned to United States ports.

[5] To all destinations, including United States.

TABLE 26.—*Principal Philippine imports from all countries and from continental United States, by commodity groups, 1911–1914, 1924–1928, and 1929*

[Values in thousands of dollars, i. e., 000 omitted]

Commodity	Imports from the United States				Per cent from United States			Total imports			
	1929	Increase 1924–1928, annual average over 1911–1914 (decrease—)	1924–1928 annual average [1]	1911–1914 annual average [2]	1929	1924–1928 [1]	1911–1914 [2]	1929	Increase 1924–1928, annual average over 1911–1914 (decrease—)	1924–1928 annual average [1]	1911–1914 annual average [2]
Cotton goods, total	($15,849)	($8,706)	($14,245)	($5,539)	(58.8)	(54.1)	(52.4)	($26,977)	($15,780)	($26,340)	($10,560)
Cotton cloth, unbleached	675	240	533	293	75.0	40.5	81.3	900	956	1,316	360
Cotton cloth, bleached	5,363	3,574	5,096	1,522	77.9	77.6	62.6	6,882	4,135	6,568	2,433
Cotton cloth, dyed in the piece or woven with dyed yarn	3,693	1,510	2,712	1,202	48.8	39.4	52.2	7,563	4,574	6,877	2,303
Cotton cloth, printed	2,414	1,604	3,093	1,489	68.5	76.1	78.8	3,526	2,175	4,064	1,889
Cotton knit goods	574	393	507	114	22.8	19.1	12.0	2,512	1,707	2,658	951
Cotton yarn	3	2	4	2	.3	.4	.1	826	154	1,023	869
Cotton goods, all other	3,127	1,383	2,300	917	65.6	60.0	52.2	4,768	2,079	3,834	1,755
Iron and steel manufactures, except machinery	10,332	3,768	7,046	3,278	79.7	74.1	74.6	12,963	5,116	9,508	4,392
Autos and motor trucks and parts of, including auto tires [3]	7,546	4,338	5,049	711	98.8	97.3	75.4	7,636	4,248	5,191	943
Machinery and engines	7,448	2,725	4,374	1,649	83.3	79.3	65.8	8,943	3,008	5,513	2,505
Wheat flour	4,348	3,072	4,185	1,113	85.9	84.8	64.6	5,060	3,212	4,936	1,724
Dairy products	3,035	2,439	2,610	171	79.2	81.7	15.1	3,832	2,056	3,194	1,138
Gasoline and naphtha	3,559	2,318	2,522	204	80.7	79.4	86.0	4,408	2,938	3,175	237
Kerosene	2,651	1,351	2,450	1,099	89.6	91.1	88.5	2,959	1,448	2,690	1,242
Tobacco products, total	(3,151)	(1,894)	(2,092)	(198)	(96.3)	(92.3)	(80.4)	(3,270)	(2,020)	(2,266)	(246)
Cigarettes	2,126	1,053	1,080	27	100.0	100.0	99.7	2,126	1,053	1,080	27
Leaf tobacco	495	564	568	4	83.9	79.6	12.5	590	678	713	35
All other tobacco and tobacco products	530	277	444	167	95.7	93.9	90.5	554	289	473	184
Fish products, edible	1,898	1,455	1,822	367	81.2	80.4	52.6	2,337	1,568	2,267	699
Electrical machinery, apparatus, and appliances	3,140	1,724	1,777	53	84.2	87.7	76.0	3,730	1,956	2,026	70
Silk goods	2,034	1,487	1,595	108	43.6	47.5	12.5	4,664	2,495	3,355	860
Chemicals, drugs, dyes, and medicines	1,744	1,103	1,489	386	68.6	71.3	51.2	2,544	1,332	2,087	755
Fertilizers	2,131	1,467	1,472	5	74.0	83.0	11.9	2,882	1,736	1,774	38
Leather, and manufactures of	1,723	361	1,414	1,053	95.4	93.6	88.7	1,807	323	1,510	1,187
Paper, unprinted	1,876	870	1,316	446	67.7	61.1	56.0	2,770	1,359	2,155	796
Paper, printed matter	1,170	968	1,235	267	80.3	85.2	53.1	1,457	945	1,449	504
Fuel oil	1,204	1,124	1,126	2	85.2	68.1	23.3	1,414	1,645	1,653	8
Fruits and nuts	1,233	731	894	163	72.4	72.0	41.6	1,702	849	1,241	392
Lubricating oil	884	640	787	147	88.2	87.8	97.3	1,002	745	897	152

Source: Annual Reports of the Insular Collector of Customs, Manila, P. I.

[1] Five calendar years, 1924–1928.

[2] 4½-year average (3 fiscal years to June 30, 1913, and 1½ years to Dec. 31, 1914).

[3] Auto tires are not shown separately in years 1911–1914; they are therefore included in "auto and motor trucks" for the years 1924–1928 in order to get a comparable figure.

TABLE 26.—*Principal Philippine imports from all countries and from continental United States, by commodity groups, 1911–1914, 1924–1928, and 1929*—Continued

[Values in thousands of dollars, i. e., 000 omitted]

Commodity	Imports from the United States				Per cent from United States			Total imports			
	1929	Increase 1924–1928, annual average over 1911–1914 (decrease—)	1924–1928 annual average	1911–1914 annual average	1929	1924-1928	1911-1914	1929	Increase 1924–1928, annual average over 1911–1914 (decrease—)	1924–1928 annual average	1911–1914 annual average
Soap	$941	$539	$749	$210	96.3	95.2	58.7	$978	$430	$787	$357
Paints, pigments, and varnishes	795	456	603	147	80.0	77.5	52.7	994	500	778	278
Rubber, and manufactures of, except auto tires	1,035	330	594	264	94.3	89.8	87.9	1,097	360	660	300
Vegetables	719	348	549	201	33.2	30.1	26.1	2,163	1,057	1,824	767
Meat products, total	(636)	(−65)	(541)	(606)	(20.8)	(20.4)	(29.6)	(3,062)	(610)	(2,654)	(2,044)
Lard	8	−56	5	61	1.2	.9	30.8	621	398	597	199
All other	628	−9	536	545	25.7	26.1	29.5	2,441	212	2,057	1,845
Woolen goods	419	320	468	148	44.1	51.6	41.1	950	545	906	361
Perfumery, and all other toilet preparations	522	385	460	75	59.0	60.9	39.0	894	563	756	193
Wood, and manufactures of	618	−135	381	516	70.2	66.4	66.0	873	−207	575	782
Hats	304	248	304	56	64.5	61.1	31.6	471	320	498	178
Glass and glassware	622	219	293	74	64.5	35.9	21.7	964	478	817	339
Cereals, and manufactures of, except wheat flour and rice	498	−4	206	210	33.8	21.8	34.0	1,471	326	943	617
Earths and clays, and manufactures of	245	131	150	19	31.2	22.5	9.0	785	454	665	211
Sugar and molasses	255	44	147	103	78.0	40.4	32.5	327	48	365	317
Coffee, raw and prepared	150	−99	141	240	14.6	16.9	69.1	1,023	489	837	348
Cacao and manufactures	192	109	126	17	25.4	19.2	5.7	754	366	656	290
Wax	108	59	121	62	27.3	36.2	53.0	295	217	334	117
Coal	(4)	−51	69	120	----	2.9	8.3	2,569	938	2,389	1,451
Fibers, and manufactures of	68	−44	53	97	2.1	2.4	17.4	3,234	1,666	2,222	556
Starch	71	17	22	5	32.3	8.1	17.5	221	244	276	31
Spirits, wines, and liquors	7	−64	10	74	.9	1.7	23.0	813	249	573	324
Cement	7	−13	8	21	1.5	2.0	3.3	466	−234	393	628
Eggs	4	2	2	----	.3	.2	----	1,257	503	866	362
Rice	1	(4)	(4)	----	----	----	----	5,810	−1,926	4,745	6,672
Total above groups	85,173	45,273	65,497	20,224	63.6	60.2	44.0	133,928	62,775	108,746	45,971
Per cent of total	92.0	----	91.8	87.3	----	----	----	91.0	----	91.0	87.2
All other imports	7,420	2,880	5,825	2,945	56.1	54.1	43.5	13,232	3,993	10,764	6,771
Total imports	92,593	48,153	71,322	23,169	62.9	59.7	43.9	147,160	66,768	119,510	52,742

4 Less than $500.

TABLE 27.—*Imports of cotton cloth into the Philippines*

[Calendar year, 1929. Annual average (5 years) 1924–1928 (years ended Dec. 31). Annual average (4½ years) 1911–1914 (years ended June 30) [1]]

Commodity	Total, from all countries			From United States			From countries other than the United States		
	Quantity	Value	Unit value per square yard	Quantity	Value	Unit value per square yard	Quantity	Value	Unit value per square yard
Unbleached:	*Square yards*	*Dollars*	*Cents*	*Square yards*	*Dollars*	*Cents*	*Square yards*	*Dollars*	*Cents*
Calendar year 1929	8,721,319	899,953	10.32	6,134,188	674,889	11.00	2,587,131	225,064	8.70
Annual average 1924–1928	12,776,179	1,315,672	10.30	4,497,021	533,358	11.86	8,279,158	782,314	9.45
Annual average 1911–1914	4,786,734	360,310	7.53	3,857,368	293,006	7.60	929,366	67,304	7.24
Bleached:									
Calendar year 1929	51,711,469	6,882,488	13.31	41,067,166	5,363,324	13.06	10,644,303	1,519,164	14.27
Annual average 1924–1928	48,593,730	6,568,427	13.52	38,734,799	5,095,637	13.16	9,858,931	1,472,790	14.94
Annual average 1911–1914	30,754,002	2,433,317	7.91	18,986,653	1,522,071	8.02	11,767,349	911,246	7.74
Dyed in the piece or woven with dyed yarns:									
Calendar year 1929	52,424,225	7,563,472	14.43	26,109,651	3,693,021	14.14	27,314,574	3,870,451	14.17
Annual average 1924–1928	42,594,901	6,876,716	16.14	16,665,862	2,711,954	16.27	25,929,039	4,164,762	16.06
Annual average 1911–1914	24,465,781	2,302,633	9.41	12,222,823	1,202,202	9.84	12,242,958	1,100,431	8.99
Printed:									
Calendar year 1929	26,906,626	3,525,593	13.10	19,932,884	2,414,238	12.11	6,973,742	1,111,355	15.94
Annual average 1924–1928	30,180,868	4,064,266	13.47	24,100,931	3,092,728	12.83	6,079,937	971,538	15.98
Annual average 1911–1914	27,317,542	1,889,332	6.92	21,756,093	1,489,003	6.84	5,561,449	400,329	7.20
Total cotton cloth:									
Calendar year 1929	139,763,639	18,871,506	13.50	93,243,889	12,145,472	13.03	46,519,750	6,726,034	14.46
Annual average 1924–1928	134,145,678	18,825,081	14.03	83,998,613	11,433,677	13.61	50,147,065	7,391,404	14.74
Annual average 1911–1914	87,324,059	6,985,592	8.00	56,822,937	4,506,282	7.94	30,501,122	2,479,310	8.13

Source: Annual Reports of the Insular Collector of Customs, Manila, P. I.

[1] Six months 1913 and year 1914, ended Dec. 31.

TABLE 28.—*United States exports* [1] *to the Philippines and to all destinations (commodities over $100,000 in value), 1928 and 1929*

Commodity	1928			1929		
	Per cent to Philippines	To Philippines	Total to all countries	Per cent to Philippines	To Philippines	Total to all countries
Cotton manufactures, total	12.60	$13,910,991	$110,418,515	11.10	$12,350,754	$111,218,155
Cotton cloth, total	16.72	12,019,406	71,885,113	14.16	10,123,642	71,490,237
Unbleached	6.30	738,342	11,712,364	6.23	775,141	12,444,926
Bleached	44.23	4,908,855	11,097,757	33.75	3,574,520	10,589,933
Colored and yarn dyed	12.98	6,372,209	49,074,992	11.92	5,773,981	48,455,378
Cotton sewing thread	45.25	463,017	1,023,236	55.52	638,228	1,149,515
Cotton fabrics sold by the pound	7.22	241,101	3,337,259	6.78	254,743	3,756,248
Cotton twine and cordage	10.92	162,749	1,490,599	10.35	187,599	1,811,740
Cotton towels, bath mats, and wash cloths	9.82	107,808	1,097,330	5.08	67,439	1,326,797
Cotton hosiery, women's	2.82	104,534	3,700,981	1.81	62,469	3,442,369
Cotton manufactures, all other	2.91	812,376	27,883,997	3.59	1,016,634	28,241,249
Iron and steel manufactures, except machinery and vehicles, total	3.20	8,388,774	262,205,382	3.47	9,965,316	287,145,910
Iron and steel sheets, galvanized	14.79	2,168,659	14,663,965	17.88	2,638,728	14,759,021
Tin plates, terneplate, and taggers tin	2.29	602,077	26,345,576	3.21	916,509	28,566,189
Welded galvanized pipe	11.90	393,177	3,302,976	9.92	395,885	3,991,720
Steel sheets, black	2.25	304,943	13,576,541	1.72	246,035	14,307,338
Structural shapes, fabricated	6.43	297,525	4,629,479	1.68	86,809	5,170,345
Not fabricated	3.29	288,385	8,753,890	1.90	240,927	12,683,746
Metal furniture and fixtures	3.43	276,287	8,056.660	4.17	366,524	8,787,158
Rails, 50 pounds and over per yard	3.92	238,210	6,075,709	4.61	199,461	4,323,848
Hardware	2.85	242,386	8,502,489	2.77	272,316	9,830,994
Wire rope	14.06	221,875	1,577,875	12.41	236,666	1,906,744
Tools	2.75	210,403	7,652,710	2.54	224,791	8,849,175
Mechanics' and other hand tools, n. e. s	1.57	154,604	9,821,227	1.84	162,483	8,808,628
Barbed wire	4.20	183,877	4,376,680	8.89	333,365	3,748,336
Wire nails	18.24	174,315	955,722	19.70	170,299	864,447
Steel bars	1.60	146,126	9,114,056	2.72	277,098	10,170,297
Plates not fabricated, other than boiler	1.69	134,386	7,966,195	.98	91,971	9,374,994
Cast-iron pipe and fittings:						
Soil pipe and fittings	10.74	116,864	1,088,137	16.84	207,172	1,230,403
Screwed pipe fittings	7.91	106,647	1,347,804	7.40	174,793	2,362,122
Pressure pipe and fittings	11.55	105,574	913,670	12.69	183,253	1,443,742
Rail joints, splice bars, fishplates and tie-plates	6.27	108,912	1,737,987	3.50	53,264	1,520,626
Welded black pipe	1.72	108,843	6,323,985	1.49	138,418	9,275,651
Iron and steel manufactures, all other	1.56	1,804,699	115,422,049	1.88	2,348,549	125,170,386

[1] Including products and manufactures of the United States, excluding exports of foreign merchandise.

Industrial machinery, total	2.72	6,157,677	226,627,576	1.97	5,458,752	277,764,507
Sewing machines for domestic use	19.74	859,921	4,355,583	16.67	906,884	5,439,026
Locomotives	10.74	341,687	3,181,994	5.13	244,352	4,767,207
Sugarcane mill machinery	51.16	326,628	638,491	44.63	321,595	720,564
Other sugar mill machinery	43.58	1,766,426	4,053,145	23.17	860,924	3,716,301
Steam engines, stationary, except turbines	41.88	205,409	490,483	30.97	123,707	399,455
Steam boilers, water tubes	21.27	197,477	928,556	6.34	89,168	1,406,783
Stationary and portable engines, not over 10 horsepower (other than Diesel and semi-Diesel)	5.84	193,501	3,312,010	3.64	111,635	3,066,797
Sawmill machinery	14.97	137,909	921,252	14.82	139,409	940,906
Steam engines, mechanical drive turbines	24.06	102,399	425,682	2.02	7,700	381,905
Other industrial machinery and parts	.97	2,026,320	208,320,380	1.03	2,653,378	256,925,563
Wheat flour	6.17	4,557,305	73,855,258	5.60	4,523,191	80,791,106
Automobiles, motor trucks, busses and chassis, except electric	1.18	4,083,572	347,120,982	1.35	4,655,392	345,726,519
Passenger cars and chassis, except electric	1.05	2,772,696	263,575,739	1.02	2,381,495	234,291,394
Group A—low-price range, up to $1,000	1.18	1,776,691	149,986,264	1.28	1,654,996	129,771,602
Group B—medium-price range, over $1,000 to $2,000	.81	695,411	85,732,467	.72	584,736	80,869,841
Group C—high-price range, over $2,000	1.08	300,594	27,857,008	.60	141,763	23,649,951
Motor trucks, busses, and chassis, except electric, up to 1 ton	1.53	786,892	51,343,934	1.80	1,176,481	65,235,437
Motor trucks, busses, and chassis, over 1 to 2½ tons	1.63	523,984	32,201,309	2.38	1,097,416	46,199,688
Gasoline, total	1.29	2,999,896	232,297,568	1.10	2,926,371	266,903,923
Gasoline, in containers	4.99	1,876,523	37,575,228	3.77	1,683,732	44,652,808
In bulk	.58	1,123,373	194,722,340	.56	1,242,639	222,251,115
Tobacco and manufactures, total	1.56	2,783,645	178,053,256	1.86	3,049,305	164,414,017
Cigarettes	8.03	1,772,382	22,059,149	13.72	2,291,932	16,706,421
Leaf tobacco, except cigar leaf	.25	386,577	153,558,515	.01	15,934	114,764,935
Cigar leaf	60.78	348,977	574,125	37.52	374,613	998,535
Chewing tobacco, plug and other	14.81	275,709	1,861,467	18.87	366,826	1,944,126
Illuminating oil (kerosene), total	2.45	2,286,871	93,466,413	3.03	2,539,550	83,797,818
In containers	3.82	1,403,513	36,785,680	4.40	1,692,134	38,464,808
In bulk	1.56	883,358	56,680,733	1.87	847,416	45,333,010
Evaporated milk and cream (unsweetened)	19.94	1,575,817	7,904,541	25.24	1,727,689	6,844,208
Fish, canned, total	9.55	1,540,252	16,134,838	10.01	1,875,562	18,729,885
Sardines, canned	13.62	888,114	6,522,711	15.60	1,469,070	9,418,511
Other fish, canned	6.78	652,138	9,612,127	4.37	406,492	9,311,374
Condensed milk and cream (sweetened)	22.95	1,420,886	6,191,185	22.13	1,429,396	6,458,838

TABLE 28.—*United States exports to the Philippines and to all destinations (commodities over $100,000 in value), 1928 and 1929*—Continued

Commodity	1928			1929		
	Per cent to Philippines	To Philippines	Total to all countries	Per cent to Philippines	To Philippines	Total to all countries
Paper, total	4.31	$1,334,723	$30,933,131	4.80	$1,786,676	$37,189,486
Newsprint paper, printing	33.73	292,070	865,956	23.71	319,086	1,345,873
Book paper, not coated, printing	9.76	174,607	1,789,694	10.48	277,741	2,651,325
Wrapping paper	6.17	159,605	2,586,848	6.30	186,361	2,957,204
Writing paper, other than fancy	4.85	137,326	2,832,934	6.86	202,802	2,955,732
Other paper and paper products	2.50	571,115	22,857,699	2.94	800,686	27,279,352
Fertilizer materials, total	7.64	1,229,321	16,094,809	9.89	2,021,103	20,440,677
Nitrogenous	14.37	675,051	4,697,071	2.27	1,525,347	7,525,514
Other than nitrogenous	4.86	554,270	11,397,738	3.84	495,756	12,915,163
Automobile casings	3.88	1,204,620	31,064,635	4.17	1,395,324	33,479,692
Leather and manufactures, total	2.75	1,051,108	38,161,315	3.20	914,192	28,541,534
Upper leather, except patent, total	2.18	400,552	18,384,044	1.77	243,120	13,714,392
Calf and kip, other than black	1.69	145,811	8,646,112	1.57	90,574	5,753,074
Goat and kid (glazed) other than black	1.58	140,251	8,904,013	1.06	77,705	7,351,580
Cattle side, finished splits	13.73	114,490	833,919	12.27	74,841	609,738
Patent upper leather, side	1.87	199,074	10,644,204	2.96	203,251	6,856,150
Sole leather, bends, backs, and sides	9.99	187,368	1,874,652	11.20	131,014	1,170,248
Other sole leather (including offal)	7.39	108,095	1,461,898	9.62	117,289	1,219,637
Leather boots and shoes, men's and boys'	2.69	156,019	5,796,517	3.93	219,518	5,581,107
Books and pamphlets	8.32	983,620	11,823,566	7.55	1,027,938	13,607,484
Lubricating oil, red and pale	1.74	945,549	54,462,886	1.44	889,241	61,566,280
Soap, total	15.76	894,595	5,675,733	18.38	951,319	5,176,758
Laundry	21.46	724,561	3,376,829	23.60	753,519	3,193,137
Toilet or fancy	7.40	170,034	2,298,904	9.97	197,800	1,983,621
Canvas shoes with rubber soles	22.93	842,698	3,674,723	22.11	1,106,433	5,004,855
Automobile parts for replacement	1.11	670,381	60,333,587	1.34	871,925	65,156,817
Medicinal preparations, total	3.82	600,534	15,734,548	4.14	677,888	16,367,435
For internal use	3.86	450,355	11,655,615	4.54	524,024	11,550,537
For external use	3.68	150,179	4,078,933	3.19	153,864	4,816,898

Gas and fuel oil	1.29	589,773	45,811,654	2.23	830,406	37,199,685
Parts for railway cars, except axles and wheels	14.28	481,045	3,369,654	6.76	365,067	5,396,867
Paints, stains, and enamels	4.04	431,052	10,671,434	3.69	429,297	11,631,102
Phonographs and phonograph records	3.48	382,070	10,987,016	4.28	521,586	12,196,068
Silk, total	3.24	374,233	11,561,871	3.59	449,666	12,541,029
Hosiery, women's full fashioned	2.37	191,953	8,113,695	3.12	262,397	8,405,944
Broad silks (fabrics)	5.29	182,280	3,448,176	4.53	187,269	4,135,085
Insulated copper wire and cable	6.52	314,199	4,816,608	6.26	386,741	6,176,455
Rayon, total	8.46	301,596	3,566,863	6.61	262,749	3,977,180
Woven and knit-dress and piece goods	12.06	155,374	1,288,179	5.40	123,859	2,295,355
Hosiery, women's	6.42	146,222	2,278,684	8.26	138,890	1,681,825
Flashlights and flashlight batteries	5.47	299,031	5,469,073	4.57	276,796	6,054,694
Oranges	1.74	241,599	13,912,198	1.39	261,131	18,745,561
Coffee, green	10.90	225,158	2,066,150	28.49	279,102	979,667
Talcum and other toilet powder	13.15	211,118	1,605,630	13.67	217,692	1,592,301
Automobile inner tubes	5.52	194,780	3,531,079	5.44	185,349	3,409,611
Apples, in boxes	1.07	186,706	17,430,937	1.24	257,040	20,671,242
Cornstarch and corn flour	2.30	181,852	7,893,269	3.57	316,322	8,857,751
Confectionery, other than chocolate	8.01	171,948	2,146,004	7.52	154,365	2,053,675
Freight cars, railway	4.33	170,413	3,937,626	6.63	392,340	5,916,206
Standard typewriters, new	1.14	166,145	14,626,751	.91	142,794	15,771,088
Writing ink	45.38	159,627	351,776	18.48	39,832	215,587
Chewing gum	11.76	158,995	1,352,534	13.38	206,869	1,546,569
Wheel tractors, 15 to 32 belt horsepower	.45	154,941	34,368,514	.21	82,349	39,714,467
Dental creams	5.79	154,423	2,668,642	3.60	91,118	2,531,756
Cotton rags, except paper stock	10.56	150,767	1,428,357	11.09	170,984	1,541,930
Watches, with jewels	27.85	147,133	528,350	34.48	147,607	428,041
Hydroxide (caustic soda, lye)	4.05	141,180	3,487,832	4.07	143,076	3,516,023
Absorbent cotton, gauze, and surgical dressings	6.17	138,095	2,238,353	5.34	132,196	2,476,360
Grapes	5.37	134,599	2,505,097	5.74	141,474	2,463,724
Photographic paper	6.40	128,825	2,013,620	16.53	403,520	2,444,941
Butter	6.40	119,108	1,860,773	5.00	87,580	1,750,278
Oilcloth, except for floors	5.01	117,521	2,343,933	4.48	105,457	2,352,569
Hams and shoulders, cured	.50	116,028	23,305,970	.46	121,071	26,461,981
Household and personal effects	.69	111,784	16,113,848	.67	124,283	18,544,009
Dynamite	4.99	108,433	2,171,461	6.46	144,023	2,228,075
Cocoa, powdered	30.39	106,526	350,531	37.83	168,916	446,532
Lamps and lanterns, except electric	6.17	101,398	1,643,964	5.27	128,199	2,430,595
Rubber soles and heels	5.24	100,175	1,910,647	5.29	77,972	1,473,382
Total of commodities over $100,000	3.20	66,735,111	2,086,282,466	3.17	70,388,287	2,222,062,905
Per cent of all commodities		83.79	41.48		82.41	43.09
Total, all commodities	1.58	79,648,099	5,030,098,694	1.66	85,414,044	5,157,083,027

Source: Foreign Commerce and Navigation of the United States.

TABLE 29.—*Domestic merchandise exported to the Philippines from the United States, 1910–1914, 1924–1928, and 1929*

	Year ended Dec. 31							Year ended June 30, annual average 1910–1914 [1]
	1929	Annual average 1924–1928	1924	1925	1926	1927	1928	
Agricultural products:								
Total excluding coffee	$1,450,133	$1,318,758	$1,022,390	$1,264,083	$1,260,089	$1,431,239	$1,615,989	$584,634
Per cent [2]	1.70	1.95	1.72	2.07	1.84	2.06	2.03	2.59
Coffee, green	$279,102	$229,282	$188,593	$217,889	$287,173	$227,598	$225,158	$136,268
Per cent [2]	.33	.34	.33	.36	.42	.33	.28	.60
Manufactures of agricultural products:								
Total excluding coffee	$31,559,689	$28,235,539	$23,878,758	$27,444,492	$30,108,269	$28,174,594	$31,571,580	$9,598,494
Per cent [2]	36.95	41.78	40.23	45.03	43.94	40.60	39.64	42.56
Coffee, roasted	$105,981	$71,224	$84,711	$47,453	$75,058	$73,292	$75,606	$63,208
Per cent [2]	.12	.11	.14	.08	.10	.11	.09	.28
All other products:								
Total	$52,019,139	$37,718,570	$34,181,690	$31,971,899	$36,792,634	$39,486,860	$46,159,766	$12,173,267
Per cent [2]	60.90	55.82	57.58	52.46	53.70	56.90	57.96	53.97
Fish	$2,026,350	$1,897,099	$2,126,356	$1,917,630	$1,966,929	$1,840,802	$1,633,777	$419,138
Per cent [2]	2.37	2.81	3.58	3.15	2.87	2.65	2.05	1.86
Textiles, except cotton, wool, and vegetable fibers	$1,442,653	$1,201,459	$953,033	$919,640	$1,182,201	$1,635,096	$1,317,327	$72,828
Per cent [2]	1.69	1.78	1.61	1.51	1.73	2.36	1.65	.32
Wood and paper	$2,319,566	$2,214,414	$2,882,496	$2,822,605	$1,748,164	$1,740,707	$1,878,097	$886,205
Per cent [2]	2.72	3.28	4.86	4.63	2.55	2.51	2.36	3.93
Nonmetallic minerals	$8,432,599	$6,690,017	$6,722,115	$6,005,235	$6,949,262	$5,883,027	$7,890,448	$1,579,563
Per cent [2]	9.87	9.90	11.32	9.85	10.14	8.48	9.91	7.00
Metals and manufactures, except machinery and vehicles	$11,407,003	$7,868,911	$7,054,119	$6,715,337	$7,742,662	$8,159,559	$9,672,878	$3,596,960
Per cent [2]	13.35	11.64	11.88	11.02	11.30	11.75	12.14	15.95
Machinery and vehicles	$15,544,861	$10,569,215	$8,659,758	$8,458,844	$9,523,667	$11,477,748	$14,726,056	$2,841,168
Per cent [2]	18.20	15.64	14.59	13.88	13.90	16.54	18.49	12.60
Chemicals and related products	$6,001,913	$4,335,704	$4,208,354	$3,569,801	$4,224,582	$4,745,249	$4,930,534	$1,126,068
Per cent [2]	7.03	6.42	7.09	5.86	6.17	6.84	6.20	4.99
Miscellaneous	$4,737,440	$2,855,856	$1,519,874	$1,514,371	$3,344,805	$3,860,258	$4,039,971	$1,505,596
Per cent [2]	5.55	4.22	2.56	2.48	4.88	5.56	5.07	6.67
All other	$106,754	$85,895	$55,585	$48,436	$110,362	$144,414	$70,678	$145,741
Per cent [2]	.12	.13	.09	.08	.16	21	.09	.65
Total exports	$85,414,044	$67,573,373	$59,356,142	$60,945,816	$68,523,223	$69,393,583	$79,648,099	$22,555,871

Source: Foreign Commerce and Navigation of the United States.

[1] Figures for years 1910 to 1914 are approximate, owing to irregular classification of basic material.

[2] Per cent of total value of United States domestic merchandise exported to Philippines.

TABLE 30.—*United States exports to Philippines compared with total exports*

[Values in thousands of dollars]

Year	Total exports from United States [1]	Total to Philippines [2]	Per cent of total to Philippines
Fiscal year:			
1910	$1,744,985	$16,833	0.96
1911	2,049,320	19,723	.96
1912	2,204,322	23,736	1.08
1913	2,465,884	25,385	1.03
1914	2,364,579	27,305	1.16
1915	2,768,589	24,755	.89
1916	4,333,483	23,421	.54
1917	6,290,048	27,207	.43
1918	5,919,711	48,425	.82
Calendar year:			
1918	6,149,088	52,976	.86
1919	7,920,426	70,552	.89
1920	8,228,016	99,830	1.21
1921	4,485,031	46,516	1.04
1922	3,831,777	43,298	1.13
1923	4,167,493	49,241	1.18
1924	4,590,984	59,519	1.30
1925	4,909,848	61,061	1.24
1926	4,808,660	68,648	1.43
1927	4,865,375	69,522	1.43
1928	5,128,356	79,806	1.56
1929	5,157,083	85,414	1.66

[1] Includes both domestic and foreign merchandise exported from continental United States and possessions. In 1928 exports from possessions outside of continental United States amounted to less than 1 per cent of total exports.

[2] Includes exports from the customs districts of Porto Rico, Hawaii, and Alaska.

TABLE 31.—*Reexportation of merchandise imported from continental United States into the Philippines to all Asiatic points,[1] 1910 to 1929*

Year ended Dec. 31—	Per cent reexported to Asiatic destinations	Value of reexportation of imports from United States	Total value imported from United States	Year ended Dec. 31—	Per cent reexported to Asiatic destinations	Value of reexportation of imports from United States	Total value imported from United States
1910	----------	(2)	$20,068,542	1920	2.3	$2,111,194	$92,289,778
1911	----------	(2)	19,156,987	1921	1.4	1,054,550	74,130,015
1912	0.1	$18,747	24,309,010	1922	1.6	783,414	47,738,326
1913	.3	90,190	26,676,261	1923	.4	208,420	50,352,535
1914	.2	55,171	24,011,401	1924	.5	276,549	60,398,603
1915	.5	135,344	26,381,069	1925	.3	222,008	69,297,583
1916	2.4	556,732	22,862,673	1926	.3	195,972	71,575,618
1917	2.8	1,063,030	37,620,648	1927	.3	213,043	71,478,297
1918	3.8	2,228,404	58,824,611	1928	.2	166,168	83,858,068
1919	4.4	3,350,600	75,491,414	1929	.2	178,344	92,592,959

Source: Annual Reports of the Insular Collector of Customs, Manila, P. I.

[1] Including China, British East Indies, Dutch East Indies, French East Indies, Hong Kong, Japan, Japanese China, Korea, Portuguese East Indies, and all other Asiatic ports in Asia.

[2] Imports from United States not shown separately.

TABLE 32.—*Classification of United States imports from and exports to the Philippines by regional groups of ports,[1] 1910–1914, 1924–1928, and 1929*

Year	Imports from Philippines				
	Total value	Atlantic ports	Pacific ports	Gulf ports	Ports not classified
Year ended June 30:					
1910	$17,317,897	$12,911,590	$4,112,321	----------	$293,986
Per cent	100	74.5	23.7	----------	1.7
1911	$17,400,398	$13,188,154	$4,118,336	$367	$93,341
Per cent	100	75.8	23.7	(3)	.5
1912	$23,257,199	$16,652,178	$6,516,421	----------	$88,600
Per cent	100	71.6	28.0	----------	.4
1913	$21,010,248	$13,906,208	$6,879,609	$4,158	$220,273
Per cent	100	66.2	32.7	(3)	1.0
1914	$18,162,312	$10,904,625	$7,159,687	$3,228	$94,772
Per cent	100	60.0	39.4	(3)	.5
Average 1910–1914	$19,429,611	$13,512,551	$5,757,275	$1,551	$158,234
Per cent	100	69.546	29.6	(3)	.8
Year ended Dec. 31:					
1924	$97,088,444	$59,808,227	$31,125.211	$3,701,051	$2,453,955
Per cent	100	61.6	32.1	3.8	2.5
1925	$111,819,533	$68,731,449	$35,755,858	$4,900,045	$2,432,181
Per cent	100	61.5	32.0	4.4	2.2
1926	$103,796,844	$62,649,299	$31,419,001	$7,698,170	$2,030,374
Per cent	100	60.4	30.3	7.4	2.0
1927	$115,980,112	$77,205,965	$31,134,943	$5,770,487	$1,868,717
Per cent	100	66.6	26.8	5.0	1.6
1928	$115,608,653	$72,014,242	$31,782,476	$9,824,798	$1,987,137
Per cent	100	62.3	27.5	8.5	1.8
Average 1924–1928	$108,858,717	$68,081,836	$32,243,498	$6,378,910	$2,154,473
Per cent	100	62.5	29.6	5.9	2.0
1929	$125,792,399	$87,003,592	$26,084,208	$10,862,820	$1,841,779
Per cent	100	69.2	20.7	8.6	1.5

Year	Exports [2] to Philippines				
	Total value	Atlantic ports	Pacific ports	Gulf ports	Ports not classified
Year ended June 30:					
1910	$16,832,645	$8,879,072	$7,875,461	----------	$78,112
Per cent	100	52.8	46.8	----------	.5
1911	$19,723,113	$12,058,670	$7,592,470	$61,097	$10,876
Per cent	100	61.1	38.5	.3	.1
1912	$23,736,133	$14,327,846	$9,143,999	$226,798	$37,490
Per cent	100	60.4	38.5	1.0	.2
1913	$25,384,793	$16,281,652	$8,915,068	$180,297	$7,776
Per cent	100	64.1	35.1	.7	(3)
1914	$27,304,587	$17,003,366	$10,145,057	$148,818	$7,346
Per cent	100	62.3	37.2	.5	(3)
Average 1910–1914	$22,596,254	$13,710,121	$8,734,411	$123,402	$28,320
Per cent	100	60.7	38.6	.5	.1
Year ended Dec. 31:					
1924	$59,518,674	$33,391,565	$23,594,033	$1,200,359	$1,332,717
Per cent	100	56.1	39.6	2.0	2.2
1925	$61,061,486	$35,338,282	$22,445,868	$959,491	$2,317,845
Per cent	100	57.9	36.8	1.6	3.8
1926	$68,648,351	$41,507,957	$24,013,976	$1,291,757	$1,834,661
Per cent	100	60.5	35.0	1.9	2.7
1927	$69,521,666	$41,434,562	$25,483,653	$1,129,820	$1,473,631
Per cent	100	59.6	36.6	1.6	2.1
1928	$79,805,527	$44,759,802	$30,286,105	$3,147,175	$1,612,445
Per cent	100	56.1	38.0	3.9	2.0
Average 1924–1928	$67,711,141	$39,286,434	$25,164,727	$1,545,720	$1,714,260
Per cent	100	58.0	37.2	2.3	2.5
1929	$85,530,180	$49,032,287	$33,447,347	$1,599,116	$1,451,430
Per cent	100	57.3	39.1	1.9	1.7

[1] In compiling this table, the customs districts named in the following list are assumed to have been served by the ports with which they are grouped: Atlantic ports—Maine and New Hampshire, Massachusetts, Vermont, Rhode Island, Connecticut, Rochester, Buffalo, N. Y.; Philadelphia, Pittsburgh, Maryland, Virginia, South Carolina, Georgia, Porto Rico. Pacific ports—Los Angeles, San Francisco, Oregon, Washington, Alaska Hawaii. Gulf ports—Florida, Mobile, New Orleans, Sabine, Galveston, San Antonio, El Paso. Ports not classified: Dakota, Minnesota, Duluth and Superior, Wis., Michigan, Chicago, Indiana, Ohio, Kentucky, Tennessee, Iowa, St. Louis, Omaha, Colorado, Utah and Nevada.

[2] Total exports, including both domestic and foreign merchandise. In 1928, foreign exports amounted to approximately $157,000, or 0.196 per cent of total exports. In 1929 foreign exports amounted to approximately $116,136, or 0.135 per cent of total exports.

[3] Less one-tenth of 1 per cent.

TABLE 33.—*Entrances of vessels from all countries into the Philippines and value of trade (exports plus imports) with all countries and with the United States, classified by nationality of vessels*

[6-year average, 1923-1928, 1909-1914, and 1929]

	Number of vessels entered			Net tonnage of vessels entered (with cargo and in ballast)		
	1929	1923-1928	1909-1914	1929	1923-1928	1909-1914
Total, annual average	1,384	1,059	[1] 839	5,310,809	3,905,592	1,819,933
American vessels, per cent	25.94	22.57	2.74	33.20	31.73	[2] 9.61
British vessels, per cent	34.75	37.39	50.54	32.13	35.57	51.26
Japanese vessels, per cent	15.68	13.60	[1] 16.45	11.82	12.31	[1] 21.69
German vessels, per cent	10.33	7.37	13.35	11.43	8.28	12.57
Norwegian vessels, per cent	6.00	3.40	3.22	4.01	1.47	[1] 1.87
Dutch vessels, per cent	7.30	5.57	[3] .12	7.41	4.95	[3] .14

	Total value of trade carried				Value of trade carried to and from United States, Porto Rico, and Guam	
	1929	1923-1928 [4]	1913-14 [5]	1909-1912	1929	1923-1928 [6]
Total, annual average	$289,827,911	$256,256,441	$99,182,014	$82,526,674	$203,039,085	$172,851,039
American vessels, per cent	48.12	47.00	9.41	5.21	59.75	57.09
British vessels, per cent	30.20	32.14	63.21	67.67	26.36	29.52
Japanese vessels, per cent	8.72	6.43	8.03	4.36	6.98	5.35
German vessels, per cent	5.10	3.22	8.91	7.87	.03	[7] .01
Norwegian vessels, per cent	5.09	1.57	.35	2.35	5.84	1.55
Dutch vessels, per cent	2.77	2.59	([8])	([9])	1.04	.46

Source: Annual Reports Insular Collector of Customs, Manila, P. I.

[1] 4-year average.
[2] Includes Philippine vessels for 1909 and 1910.
[3] 2-year average.
[4] Calendar years, 2-year average.
[5] Fiscal years ending June 30, 4-year average.
[6] Total annual average for 1909-1914, $39,745,964; carriers not designated.
[7] 5-year average.
[8] Less than one one-hundredth of 1 per cent.
[9] Included in all other.

TABLE 34.—*Philippine insular government revenue derived from taxation, 1903–1929*[1]

Year	Total		Import duties		
	Amount	Amount per capita	Amount	Amount per capita	Per cent of total
Ending June 30:					
1903	$8,912,665	$1.17	$5,225,998	$0.68	58.64
1904	8,589,191	1.10	6,585,495	.85	76.67
1905	9,840,797	1.24	6,172,804	.78	62.73
1906	9,994,152	1.24	5,893,388	.73	58.97
1907	11,006,628	1.34	6,428,219	.78	58.40
1908	10,509,493	1.26	6,502,921	.78	61.88
1909	10,975,315	1.29	6,423,532	.75	58.53
1910	11,610,024	1.34	6,513,310	.75	56.10
1911	12,434,948	1.41	6,593,892	.75	53.03
1912	13,698,960	1.52	7,188,648	.80	52.48
1913	12,878,995	1.41	6,133,402	.67	47.62
Ending Dec. 31:					
1914	10,051,792	1.08	4,773,818	.51	47.49
1915	12,884,746	1.36	5,361,963	.56	41.61
1916	13,978,654	1.43	4,935,844	.50	35.31
1917	17,724,206	1.76	5,591,911	.56	31.55
1918	22,279,615	2.16	6,739,868	.65	30.25
1919	22,614,984	2.20	5,487,540	.53	24.26
1920	26,572,254	2.47	6,893,126	.64	25.94
1921	22,722,726	2.07	6,389,396	.58	28.12
1922	20,466,912	1.83	5,681,125	.51	27.76
1923	23,349,336	2.05	6,779,702	.59	29.04
1924	27,918,094	2.40	8,841,310	.76	31.67
1925	30,316,785	2.55	9,076,992	.76	29.94
1926	29,589,268	2.44	8,527,774	.70	28.82
1927	29,217,702	2.37	7,976,425	.65	27.30
1928	31,563,068	2.50	9,588,688	.76	30.38
1929	33,857,930	2.63	10,533,762	.82	31.11

Year	Export duties			All other taxes		
	Amount	Amount per capita	Per cent of total	Amount	Amount per capita	Per cent of total
Ending June 30:						
1903	$536,282	$0.07	6.02	$3,150,385	$0.42	35.34
1904	724,914	.09	8.44	1,278,782	.16	14.89
1905	590,485	.07	6.00	3,077,508	.39	31.27
1906	679,920	.08	6.80	3,420,844	.43	34.23
1907	714,600	.09	6.49	3,863,809	.47	35.11
1908	743,988	.09	7.08	3,262,584	.39	31.04
1909	838,025	.10	7.64	3,713,758	.44	33.83
1910	791,206	.09	6.81	4,305,508	.50	37.09
1911	1,064,332	.12	8.56	4,776,724	.54	38.41
1912	1,050,668	.12	7.67	5,459,644	.60	39.85
1913	1,003,975	.11	7.80	5,741,618	.63	44.58
Ending Dec. 31:						
1914	(2)	(2)	(2)	5,277,974	.57	52.51
1915	(2)	(2)	(2)	7,522,783	.80	58.39
1916	(2)	(2)	(2)	9,042,810	.93	64.69
1917	(2)	(2)	(2)	12,132,295	1.20	68.45
1918	(2)	(2)	(2)	15,539,747	1.51	69.75
1919	(2)	(2)	(2)	17,127,444	1.67	75.74
1920	(2)	(2)	(2)	19,679,128	1.83	74.06
1921	(2)	(2)	(2)	16,333,330	1.49	71.88
1922	(2)	(2)	(2)	14,785,787	1.32	72.24
1923	(2)	(2)	(2)	16,569,634	1.46	70.96
1924	(2)	(2)	(2)	19,076,784	1.64	68.33
1925	(2)	(2)	(2)	21,239,793	1.79	70.06
1926	(2)	(2)	(2)	21,061,494	1.74	71.18
1927	(2)	(2)	(2)	21,241,277	1.72	72.70
1928	(2)	(2)	(2)	21,974,380	1.74	69.62
1929	(2)	(2)	(2)	23,324,168	1.81	68.89

Source: Reports of the Philippine Commission, 1903–1905; Reports of the Auditor for the Philippine Islands, 1906–1929, inclusive (compiled at the Bureau of Insular Affairs, War Department).

[1] Not including United States customs duties and internal revenue transferred to Philippine insular treasury. (See Tables 35 and 36.)

[2] All export duties abolished by tariff act of 1913.

TABLE 35.—*United States internal revenue collected on Philippine products and transferred to credit of insular treasury, Philippine Islands, 1910–1929* [1]

Year ending Dec. 31	Collections in Philippine Islands	Collections in United States	Year ending Dec. 31	Collections in Philippine Islands	Collections in United States
1910	$228,034	$36,066	1921	$304,499	$73,723
1911	94,778	113	1922	709,694	4,785
1912	224,366	----------	1923	913,845	----------
1913	318,783	----------	1924	749,413	----------
1914	181,699	----------	1925	874,350	----------
1915	204,177	----------	1926	511,373	10,873
1916	357,474	----------	1927	360,782	5,484
1917	626,926	----------	1928	393,524	3,788
1918	959,877	49,489	1929	332,757	3,343
1919	1,202,045	----------			
1920	1,587,620	914	Total, 1910–1929	11,136,016	188,578

Source: Reports Insular Collector of Internal Revenue, Manila, P. I.

[1] United States internal revenue collections of this character were not subject to transfer for benefit of the insular treasury, Philippine Islands, until passage of the United States tariff act of Aug. 5, 1909.

TABLE 36.—*United States customs collections and transfers to the Philippine insular treasury under the act of March 8, 1902 (1902–1930)*

[From 1907–1926, inclusive, tonnage duties and fines not shown separately]

Year ending June 30	Import duties	Tonnage duties	Fines	Total by years
1902	$72,045	$1,173	----------	$73,218
1903	619,998	3,070	----------	623,068
1904	472,496	1,252	$92	473,840
1905	248,992	2,603	36	251,631
1906	1,056,576	41	----------	1,056,617
1907	10,481	----------	----------	10,481
1908	253,834	----------	----------	253,834
1909	981,716	----------	----------	981,716
1910	29,714	----------	----------	29,714
1911	4,289	----------	----------	4,289
1912	1,568	----------	----------	1,568
1913	1,184	----------	----------	1,184
1914	946	----------	----------	946
1915	(1)	----------	----------	(1)
1916	726	----------	----------	726
1917	8,233	----------	----------	8,233
1918	10,390	----------	----------	10,390
1919	4,859	----------	----------	4,859
1920	3,743	----------	----------	3,743
1921	5,470	----------	----------	5,470
1922	1,450	----------	----------	1,450
1923	2,334	----------	----------	2,334
1924	1,857	----------	----------	1,857
1925	1,377	----------	----------	1,377
1926	5,972	----------	----------	5,972
1927	1,198	4,579	----------	5,777
1928	965	1,326	----------	2,291
1929	1,599	10,112	----------	11,711
1930	1,577	4,640	----------	6,217
Total	3,805,587	28,797	129	3,834,513

Source: Period 1902–1907, from statement by division of public moneys (now division of bookkeeping and warrants), U. S. Treasury Department; 1908–1930, Treasury Department published statements of receipts, expenditures, balances, etc., of the United States fiscal years ending June 30.

[1] Treasury Department states there were no collections in 1915—probably included in subsequent year.

TABLE 37.—*Classification of Philippine imports according to presence or absence of tariff preference*

	Proportion of value of all Philippine imports	
	July 1, 1910–Dec. 31, 1914	Jan. 1, 1922–Dec. 31, 1926
	Per cent	*Per cent*
1. Imports, duty free, from the United States and possessions of selected articles subject to specific rates of duty when imported from other countries	16.6	20.3
2. Imports, duty free, from the United States and possessions of articles subject to ad valorem or minimum ad valorem rates of duty when imported from other countries	26.7	36.7
3. Imports from non-American countries of selected articles subject to specific rates of duty. (Same articles as in item 1)	14.9	14.5
4. Imports from non-American countries of articles subject to ad valorem or minimum ad valorem rates of duty. (Same articles as in item 2)	21.0	15.9
5. Imports of rice from all sources	12.6	5.1
6. Imports of tobacco, raw or manufactured, from all sources	.5	1.5
7. Imports free of duty regardless of origin [1]	.5	.3
8. Imports, omitted above, of articles subject to specific rates of duty if of non-American origin, but free of duty if from the United States and possessions [2]	7.2	5.7

[1] Proportions which are readily separable in the material from which the table was prepared; the actual proportions were about 3.3 and 1.4 per cent, respectively, in the periods July 1, 1910–Dec. 31, 1914, and Jan. 1, 1922–Dec. 31, 1926; the differences are distributed among other items of this table.

[2] Includes raw cacao, tea, spun silk, diamonds, copra, live animals, wood ties for railways, eggs, fodder, coal, coke, matches, certain distilled spirits, and sparkling wines, in which the United States was not in a favorable competitive position, notwithstanding the tariff preference.

TABLE 38.—*Relation of the varying degrees of tariff preference to the United States in Philippine importations and of changes therein to the share of the United States in the trade* [1]

[Comparing annual averages of 5 calendar years 1922–1926 and 4½ years, July 1, 1910 [2]–Dec. 31, 1914]

Group	Reference numbers indicating different ranges of tariff preference	Range of ad valorem or equivalent ad valorem rates on articles duty free from United States but dutiable from other countries		Share supplied by the United States of total imports of articles in the given range or group from all countries		Share which duty-free imports from the United States of articles of the given range or group formed of total imports of all commodities from all sources		
		1910–1914	1922–1926	1910–1914	1922–1926	1910–1914	1922–1926	Increase (+) or decrease (−) for 1922-1926, over 1910 1914
		Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
Group A [3]	(1)	5. 0–10. 2	5. 0– 8. 5	17	55	0. 42	1. 15	+0. 73
	(2)	10. 0–18. 1	10. 0–16. 8	56	79	10. 17	14. 11	+3. 94
	(3)	[4] 12. 2–25. 0	17. 8–25. 0	54	71	5. 94	10. 02	+4. 08
	(4)	[5] 15. 2–50. 0	26. 3–50. 0	31	52	1. 84	3. 52	+1. 68
Group total				49	70	18. 37	28. 80	+10. 43
Group B [6]	(5)	10. 3–16. 2	5. 6– 9. 7	56	75	4. 32	6. 18	+1. 6
	(6)	14. 3–35. 6	10. 3–16. 6	63	74	7. 39	10. 57	+3. 18
	(7)	23. 3–30. 4	17. 2–23. 8	4	18	. 56	1. 20	+. 68
	(8)	35. 4–47. 6	29. 7–39. 9	34	47	. 67	. 96	+. 24
Group total				36	61	12. 94	18. 91	5. 97
Group C [7]	(9)	10. 0–17. 3	10. 0–15. 8	89	72	1. 75	2. 97	+1. 22
	(10)	15. 1–25. 0	17. 8–25. 3	65	58	1. 26	. 99	−. 27
	(11)	27. 6–40. 0	27. 1–40. 0	82	62	2. 56	. 67	−1. 89
Group total				79	67	5. 57	4. 63	−. 94
Group D [8]	(12)	9. 8–12. 7	6. 6– 7. 3	50	19	. 65	. 22	−. 43
	(13)	15. 0–25. 0	10. 5–15. 5	53	38	4. 95	3. 72	−1. 23
	(14)	25. 0–37. 5	17. 5–23. 4	68	38	. 70	. 72	+. 02
	(15)	37. 2–45. 8	29. 5–35. 8	31	17	. 23	. 10	−. 13
Group total				53	35	6. 53	4. 76	−1. 77
Total						43. 41	57. 10	+13. 69

[1] For the purposes of this tabulation, the following articles have been omitted: Tobacco and manufactures of tobacco, because of the high level of tariff preference; raw cotton, hops, malt, pig iron, returned articles of Philippine production and household and personal effects, because these were free of duty either upon entry or reentry into the Philippines, regardless of origin; raw cacao, tea, spun silk, diamonds, and copra because these are not produced in the United States and its non-Philippine possessions on an export basis (except limited quantities of copra in Guam); live animals, wooden ties for railways, eggs, fodder, coal, coke, and matches, because these have never been shipped to the Philippines from the United States in comparatively large quantities, and factors other than the preferential tariff treatment of American goods controlled their importation; also certain distilled spirits and sparkling wines, because the levels of Philippine tariff preference to such goods from the United States were very high, and the United States was largely excluded from this trade during 1922–1926 by Federal statute.

[2] The first full fiscal year following the inauguration of duty-free trade under the act of Aug. 5, 1909, began July 1, 1910. Prior to this date governmental imports were not included in the Philippine trade statistics upon which this table is based.

[3] In Group A, ranges of tariff preference: (1) to (4), the annual average ad valorem equivalents of Philippine tariff preferences to United States goods practically remained unchanged or increased but slightly, or at least did not decrease by more than 2 per cent ad valorem for 1922–1926 as compared with 1910–1914, while the average percentages of the various items comprised in each range, imported from the United States and possessions in 1922–1926, increased (or at least did not decrease beyond 2 per cent) as compared with 1910–1914.

[4] Crude mineral oil, 12.2 per cent average ad valorem equivalent; the next highest average ad valorem equivalent in range (3) during 1910–1914 was 17.6 per cent.

[5] Vegetable fiber bags, 15.2 per cent annual average ad valorem equivalent; the next highest average ad valorem equivalent in range (4) during 1910–1914 was 27.1 per cent.

[6] In Group B, ranges of tariff preference (5) to (8), the annual average ad valorem equivalents of Philippine tariff preferences to United States goods decreased by more than 2 per cent ad valorem for 1922–1926 as compared with 1910–1914, while the average percentages of the various items comprised in each range, imported from the United States and possessions in 1922–1926, increased (or at least did not decrease beyond 2 per cent) as compared with 1910–1914.

[7] In Group C, ranges of tariff preference (9) to (11), the annual average ad valorem equivalents of Philippine tariff preferences to United States goods either remained practically unchanged, or increased but slightly, or at least did not decrease by more than 2 per cent ad valorem for 1922–1926 as compared with 1910–1914, while the average percentages of the various items comprised in each range, imported from the United States and possessions in 1922–1926 decreased by more than 2 per cent as compared with 1910–1914.

[8] In Group D, ranges of tariff preference (12) to (15), the annual average ad valorem equivalents of Philippine tariff preferences to United States goods decreased by more than 2 per cent ad valorem for 1922–1926, as compared with 1910–1914, and the average percentages of the various items comprised in each range, imported from the United States and possessions in 1922–1926, decreased by more than 2 per cent as compared with 1910–1914.

TABLE 39.—*Annual average values of Philippine imports from all sources and from United States and possessions, July 1, 1910–Dec. 31, 1926, by commodities and approximate levels of tariff preference* [1]

[Values in thousands of dollars; i. e., 000 omitted]

Commodity	1922–1926, annual average 5 calendar years					1919–1921, annual average 3 calendar years				
	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports [2]	Estimated ad valorem equivalent of preference	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports [2]	Estimated ad valorem equivalent of preference
			Per cent	*Per cent*	*Per cent*			*Per cent*	*Per cent*	*Per cent*
Aeroplanes and parts	$86	$85	99.9	0.08	20.0	[3] $269	$269	100.0	0.21	20.0
Agricultural implements and parts	74	71	95.4	.07	15.0	444	427	96.1	.33	15.0
Aluminum and manufactures	85	23	26.6	.02	24.1	56	48	86.4	.04	22.6
Apparatus and instruments	(1,350)	(1,183)		(1.14)		(1,621)	(1,505)		(1.18)	
Electric	835	775	92.7	.75	13.6	1,027	981	95.6	.77	13.3
Motion picture, and films	261	231	88.7	.22	35.0	238	217	91.4	.17	35.0
Scientific	67	53	80.1	.05	25.0	80	71	88.8	.06	25.0
Other	187	124	66.6	.12	20.2	276	236	85.6	.18	20.0
Automobiles and parts, including tires	3,358	3,283	97.8	3.19	21.2	5,695	5,656	99.3	4.42	21.2
Blacking and other shoe dressing	36	34	95.9	.03	25.0	49	45	93.1	.04	25.0
Brass	(323)	(216)		(.21)		(532)	(436)		(.35)	
Machinery	7	2	33.2	[5]	20.0	20	14	68.0	.01	20.0
Pins	29	21	72.5	.02	25.0	52	46	88.4	.04	25.0
Sheets	7	5	75.1	.01	10.0	14	8	57.8	.01	10.0
Wire	11	2	18.6	[5]	15.0	12	7	58.7	.01	15.0
Other manufactures	269	186	69.0	.18	21.9	434	361	83.1	.28	20.8
Breadstuffs	(10,210)	(3,567)		(3.47)		(10,262)	(1,616)		(1.26)	
Flour, wheat	4,176	3,426	82.1	3.33	6.4	4,232	1,418	33.5	1.11	5.2
Malted milk	50	[6] 29	58.7	.03	15.2	[7]	[7]			
Rice	5,244	[8]	[5]	[5]	24.7	5,299	4	.1	[5]	11.9
Other	740	112	15.2	.11	10.5	731	194	73.5	.15	10.4
Bricks	50	16	30.9	.02	10.0	78	21	27.4	.02	10.0
Brooms and brushes	115	72	62.6	.07	38.4	114	77	68.0	.06	37.3
Buttons	86	25	28.8	.02	34.8	58	18	30.7	.01	33.0
Carbonated and similar beverages	20	14	70.4	.01	7.3	43	36	83.6	.03	9.7
Cars, carriages and other vehicles	(615)	(522)		(.50)		(1,454)	(1,176)		(.93)	
Carriages for passengers	35	11	31.0	.01	20.0	80	79	97.6	.06	20.0
Cars for steam railways, and parts	[9]	[9]			10.0	252	188	74.7	.15	10.0
Cars for other railways	382	344	90.0	.33	10.0	547	345	63.2	.27	10.0
Cycles and parts	98	75	76.7	.07	20.0	172	161	93.8	.13	20.0
Wagons and carts for transporting merchandise	67	62	92.8	.06	15.0	266	266	99.8	.21	15.0
Wheelbarrows, pushcarts, and hand trucks	20	19	95.9	.02	15.0	61	61	99.6	.05	15.0
All other	13	11	87.6	.01	20.0	76	76	99.4	.06	20.0
Celluloid and manufactures	22	10	44.6	.01	35.8	21	17	81.0	.01	31.6
Cement	516	12	2.4	.01	5.6	1,135	51	4.5	.04	7.5

Chemicals and pharmaceutical products	(2,927)	(2,393)		(2.31)		(2,106)	(1,560)		(1.22)	
Acids	69	33	47.6	.03	16.8	101	62	61.1	.05	17.8
Dyestuffs and dyes	66	30	46.1	.03	29.0	98	75	76.6	.06	29.6
Fertilizers	1,186	1,085	91.5	1.05	5.0	95	32	33.6	.03	5.0
Medicines, patent and proprietary	518	373	72.0	.36	48.1	418	275	65.8	.21	52.5
Soda, caustic	160	157	98.4	.15	7.2	113	103	91.4	.08	7.1
All other chemicals, drugs and medicines	928	715	77.1	.69	24.4	1,281	1,013	79.1	.79	29.2
Clocks, watches, and parts	240	137	57.2	.13	25.0	424	221	52.0	.17	25.0
Coal	2,411	69	2.9	.07	3.9	4,260	94	2.2	.07	2.6
Cocoa or cacao, raw	467	6	1.4	.01	None.	532	21	4.0	.02	None.
Cocoa, chocolate, or cacao, prepared or manufactured	73	68	93.0	.07	28.8	57	56	97.6	.04	25.9
Coffee, green or raw [11]	614	229	37.4	.22	10.6	437	200	45.8	.16	9.5
Coffee, roasted or prepared	92	92	99.6	.09	15.1	62	62	99.8	.05	16.1
Coke	19	1	7.4	(5)	1.4	25	6	22.3	(5)	1.7
Combs	163	28	17.3	.03	39.8	170	91	53.8	.07	32.0
Confectionery	229	195	85.2	.19	25.0	403	332	82.4	.26	25.0
Copper	(336)	(363)		(.25)		(727)	(618)		(.48)	
Sheets	68	15	21.8	.01	10.0	142	75	52.9	.06	10.0
Wire, insulated	151	148	98.0	.14	10.2	319	307	96.1	.24	10.1
All other manufactures	117	100	85.4	.10	18.4	266	236	88.8	.18	17.1
Copra	[12] 33	(4)				1,399	[13] 5	.3	(5)	45.4
Cork and manufactures	22	8	34.8	.01	12.1	37	21	58.2	.02	13.8
Cotton	(25,477)	(14,696)		(14.27)		(24,382)	(15,440)		(12.08)	
Cloth, bleached	7,129	5,702	80.0	5.54	14.8	7,591	6,434	84.8	5.03	9.0
Cloth, dyed or yarn dyed	5,872	2,331	39.7	2.26	14.0	5,131	2,793	54.4	2.18	9.3
Cloth, printed	4,072	3,292	80.8	3.20	12.2	2,460	2,048	83.2	1.60	9.4
Cloth, unbleached	1,320	612	46.4	.59	19.7	1,390	599	43.1	.47	12.2
Handkerchiefs	208	33	15.7	.03	13.9	212	75	35.4	.03	10.1
Knit goods and wearing apparel	2,358	461	19.5	.45	25.0	2,423	600	24.8	.47	25.0
Other wearing apparel [16]	969	875	90.2	.85	20.3	1,211	968	80.0	.76	16.1
Raw	[17] 57	49	87.2	.05	None.	25	25	100.0	.02	None.
Thread	1,036	745	72.0	.72	25.0	985	791	80.3	.62	25.0
Yarn	1,075	7	.6	.01	15.7	1,364	201	14.7	.16	16.0
All other manufactures	1,381	589	42.6	.57	30.0	1,590	906	57.0	.71	28.7
Chinaware, earthenware, and stoneware	(516)	(91)		(.09)		(433)	(47)		(.04)	
Chinaware	260	11	4.2	.01	29.5	217	22	10.1	.02	30.4
Earthenware and stoneware	256	80	31.2	.08	23.8	216	25	11.8	.02	28.8
Dairy products	(2,671)	(2,023)		(1.97)		(2,616)	(2,128)		(1.67)	
Butter	422	152	36.0	.15	6.0	485	175	36.1	.14	4.9
Cheese	109	37	33.6	.04	15.0	89	40	45.1	.03	15.0
Milk	2,140	1,834	85.7	1.78	10.1	2,042	1,913	93.7	1.50	10.4
Eggs	730	1	.2	(5)	5.3	811	(8)			
Electric incandescent lamps	156	50	32.0	.05	10.0	191	127	66.7	.10	10.0
Explosives	301	278	92.4	.27	27.3	924	905	97.9	.71	32.5
Feed	(91)	(61)		(.06)		(134)	(100)		(.08)	
Fodder	[18] 31	[18] 2	7.4	(5)	5.0	33	(8)	.1	(5)	5.0
Hay	60	59	98.7	.06	5.0	101	100	98.7	.08	5.0
Fiber, vegetable	(1,785)	(50)		(.05)		(1,739)	(570)		(.45)	
Bags	585	3	.5	(5)	26.8	668	(8)			
Cloth	181	10	5.3	.01	12.6	135	42	31.2	.03	15.3
All other manufactures	1,019	37	3.7	.04	15.1	936	528	56.4	.41	12.0

Footnotes at end of table.

TABLE 39.—*Annual average values of Philippine imports from all sources and from United States and possessions, July 1, 1910–Dec. 31, 1926, by commodities and approximate levels of tariff preference*—Continued

Commodity	1922–1926, annual average 5 calendar years					1919–1921, annual average 3 calendar years				
	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports	Estimated ad valorem equivalent of preference	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports	Estimated ad valorem equivalent of preference
			Per cent	*Per cent*	*Per cent*			*Per cent*	*Per cent*	*Per cent*
Fish	(2,052)	(1,684)		(1.63)		(1,970)	(1,668)		(1.31)	
Canned salmon	693	693	100.0	.67	15.0	502	496	98.8	.39	15.0
Canned, all other	1,023	920	89.9	.89	17.8	1,174	1,135	96.7	.89	19.9
Dried, smoked, and cured	324	61	19.0	.06	8.9	279	27	9.8	.02	8.2
Fresh	9	9	93.0	.01	10.8	9	8	92.4	.01	7.8
All other and fish products	3	1	41.6	(5)	28.0	6	2	27.9	(5)	29.6
Fruits	(1,031)	(705)		(.69)		(1,046)	(600)		(.47)	
Canned and preserved	217	148	68.0	.14	16.6	324	240	74.1	.19	18.3
Dried	97	82	83.9	.08	11.5	116	92	78.8	.07	13.2
Fresh	533	470	88.2	.46	10.3	336	261	77.6	.20	9.5
Nuts [19]	184	5	2.9	.01	25.0	270	7	2.8	.01	25.0
Furniture	(162)	(135)		(.14)		(281)	(258)		(.20)	
Metal	113	109	95.9	.11	21.1	158	156	98.8	.12	22.2
Wood	49	26	53.8	.03	28.7	123	102	82.5	.08	29.2
Gasoline and lighter products of distillation	2,518	1,767	70.2	1.72	10.8	3,549	3,040	85.6	2.38	10.2
Glass and glassware	(665)	(253)		(.24)		(980)	(452)		(.35)	
Bottles	174	41	23.8	.04	10.0	297	77	26.1	.06	10.0
Mirrors	81	34	41.5	.03	35.0	109	81	74.5	.06	35.0
Tableware and dishes	127	50	39.1	.05	27.6	122	34	27.6	.03	25.6
All other	283	128	45.3	.12	29.6	452	260	57.5	.20	24.7
Glue	65	56	86.4	.05	25.0	68	63	92.8	.05	25.0
Gold, platinum, and silver:	(166)	(135)		(.13)		(319)	(250)		(.19)	
Jewelry	106	83	78.8	.02	26.5	231	170	73.6	.13	25.2
All other manufactures	60	52	86.9	.05	25.0	88	80	91.4	.06	25.0
Grease	60	58	96.3	.06	10.0	84	83	98.8	.06	10.0
Hair and manufactures	6	5	79.0	(5)	31.8	23	17	77.0	(5)	17.6
Hats, caps, and parts	431	282	65.4	.27	29.7	479	398	83.1	.31	41.6
Hides andskins	6	1	17.4	(5)	25.0	7	5	74.6	(5)	25.0
Hops	15	7	44.5	.01	None.	34	17	49.9	.01	None.
Ink	65	58	89.8	.06	21.4	98	85	86.5	.07	20.4
Iron and steel	(11,521)	(9,289)	(80.6)	(9.03)		(22,104)	(20,429)		(15.95)	
Bars	432	245	56.7	.24	13.4	1,411	1,341	95.1	1.05	10.8
Chains	70	50	72.1	.05	14.3	119	106	89.0	.08	11.1
Cutlery	282	77	27.4	.08	27.1	226	160	71.0	.13	28.6
Enameled ware (utensils, etc.)	297	22	7.6	.02	20.0	259	44	17.1	.03	20.0
Firearms	105	97	92.6	.09	40.0	477	476	99.8	.37	40.0
Machinery, sawmill and woodworking	86	81	94.4	.08	15.0	200	200	99.8	.16	15.0
Machinery, steam and other power engines and parts	809	661	81.7	.64	15.0	3,418	3,325	97.3	2.60	15.0

Machinery, sugar	832	778	93.6	.76	15.0	2,530	2,473	97.8	1.93	15.0
Machinery, all other	2,157	1,997	92.6	1.94	15.0	4,393	4,144	94.3	3.23	15.0
Nails, spikes, and tacks	336	367	79.4	.26	10.2	490	476	97.2	.37	10.2
Pipe and fittings	604	482	79.8	.47	11.9	900	895	99.4	.70	7.2
Pig iron	45	8	17.2	.01	None.	68	51	74.9	.04	None.
Rails, switches, fishplates, and sleepers	457	395	86.3	.38	7.4	1,335	1,315	98.5	1.03	5.0
Sheets and plates	2,367	2,151	90.9	2.09	9.1	2,060	1,705	82.8	1.33	6.4
Structural	354	330	93.2	.32	13.6	700	695	99.3	.54	8.4
Tools	480	377	78.5	.37	15.1	898	832	92.6	.65	15.0
Wire and manufactures of	604	505	83.7	.49	12.8	755	720	95.4	.56	14.0
All other manufactures	1,204	766	63.6	.74	14.3	1,865	1,471	78.9	1.15	14.4
Lamps, chandeliers, and all other illuminating devices, except electric	271	152	56.2	.15	21.7	234	161	68.7	.13	23.4
Lead and manufactures	101	85	84.0	.08	11.5	127	115	90.5	.09	13.9
Leather	(1,186)	(1,094)		(1.06)		(1,780)	(1,638)		(1.28)	
Boots and shoes	280	271	96.6	.26	24.5	1,000	986	98.6	.77	23.8
Other manufactures	170	106	62.5	.10	34.3	265	179	67.7	.14	31.8
Unmanufactured	736	717	97.4	.70	14.5	515	473	91.8	.37	13.2
Malt	64	14	22.6	.01	None.	123	123	100.0	.10	None.
Malt liquors	99	(8)			15.5	57	(8)			10.8
Matches	431	1	.3	(5)	71.7	425	4	.8	(5)	58.3
Mineral waters	73	(8)			8.3	100	(8)			6.0
Meat products	(2,315)	(418)		(.40)		(2,721)	(546)		(.50)	
Canned	249	167	67.2	.16	17.8	254	204	80.4	.16	18.5
Dried, smoked, or cured	562	156	27.8	.15	6.7	519	87	16.7	.07	7.0
Fresh	794	34	4.3	.03	5.6	1,098	151	13.7	.19	5.5
Lard and substitutes	602	58	9.6	.06	6.6	792	88	11.1	.07	5.3
All other	108	3	2.4	(5)	17.5	58	16	27.5	.01	24.1
Metals, metal compositions, and manufactures thereof, n. e. s	51	46	90.6	.05	21.8	90	81	90.1	.06	24.8
Musical instruments and parts	217	71	32.7	.07	25.3	218	158	72.7	.12	25.2
Oileloths and manufactures	158	154	97.8	.15	15.2	95	91	95.3	.07	15.4
Oils, animal	13	9	70.3	.01	16.0	13	11	81.6	.01	15.7
Oils, mineral	(5,389)	(4,542)		(4.41)		(5,538)	(4,871)		(3.80)	
Asphaltum	48	48	99.0	.05	10.3	(4)				
Crude	2,026	1,496	73.8	1.45	22.1	553	260	47.1	.20	10.0
Illuminating	2,496	2,307	92.4	2.24	10.1	3,868	3,564	92.1	2.78	10.0
Lubricating	768	661	86.1	.64	10.0	1,074	1,009	93.9	.79	10.0
Residuum, tar (all other except lighter products)	51	30	59.0	.03	10.0	43	38	88.6	.03	10.0
Oils, vegetable	486	92	18.9	.09	15.5	503	216	43.0	.17	15.6
Oils, volatile or essential	26	8	28.8	.01	50.0	47	20	41.9	.02	50.0
Paints, pigments, and varnishes	(631)	(487)		(.47)		(815)	(712)		(.56)	
Paints and pigments	579	437	75.5	.42	23.5	754	653	86.6	.51	23.0
Varnishes	52	50	96.8	.05	15.0	61	59	96.8	.05	15.0
Paper	(1,956)	(1,294)		(1.26)		(2,878)	(2,052)		(1.59)	
Cigarette	256	1	.4	(5)	15.0	596	23	3.8	.02	15.0
Printing	578	421	72.8	.41	10.0	701	683	97.4	.53	10.0
Wrapping	265	203	76.4	.20	15.2	251	222	88.5	.17	15.4
Writing and envelopes	223	184	82.3	.18	16.2	520	478	92.0	.37	16.8
All other and manufactures	634	485	76.5	.47	19.1	810	646	79.8	.50	19.9

Footnotes at end of table.

TABLE 39.—*Annual average values of Philippine imports from all sources and from United States and possessions, July 1, 1910–Dec. 31, 1926, by commodities and approximate levels of tariff preference*—Continued

Commodity	1922–1926, annual average 5 calendar years					1919–1921, annual average 3 calendar years				
	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports	Estimated ad valorem equivalent of preference	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports	Estimated ad valorem equivalent of preference
			Per cent	*Per cent*	*Per cent*			*Per cent*	*Per cent*	*Per cent*
Pencils	149	117	78.9	0.11	15.0	134	127	95.1	0.10	15.0
Perfumery and cosmetics	671	449	66.9	.44	40.0	667	441	66.2	.34	40.0
Phonographs, records, materials for, etc	137	133	97.1	.13	35.0	170	166	98.0	.13	35.0
Photographic equipment and supplies	199	188	94.2	.18	21.4	203	197	97.1	.15	21.4
Plated ware, gold, and silver	(198)	(178)		(.17)		(348)	(340)		(.26)	
Jewelry	113	101	89.2	.10	28.6	197	193	98.1	.15	27.0
All other	85	77	90.5	.07	33.6	151	147	96.8	.11	46.2
Printed matter	(1,159)	(994)		(.96)		(1,144)	(980)		(.77)	
Books	882	825	93.5	.80	10.0	730	661	90.6	.52	10.0
Lithographs and similar prints	153	76	49.6	.07	24.0	286	218	76.1	.17	23.9
Other	124	93	75.2	.09	20.2	128	101	79.1	.08	21.7
Roofing of felt and similar material	19	14	74.8	.01	9.7	93	86	93.3	.07	10.8
Rubber and manufactures	516	468	90.6	.45	20.8	843	810	96.0	.63	20.7
Salt	39	11	28.3	.01	25.0	9	8	87.2	.01	25.0
Sanitary appliances	115	108	93.6	.10	13.1	122	120	97.9	.10	16.5
Seeds	49	14	28.1	.01	8.5	48	4	8.9	(5)	10.2
Silk	(2,346)	(979)		(.94)		(2,458)	(1,066)		(.82)	
Cloth	902	375	41.6	.36	40.0	908	471	51.8	.37	40.0
Clothing and other wearing apparel	534	330	61.9	.32	50.0	343	224	65.3	.17	50.0
Handkerchiefs	86	(3)			50.0	114	(3)			50.0
Plushes and velvets	127	35	27.8	.03	40.0	220	41	18.6	.03	40.0
Ribbon	173	154	89.4	.15	50.0	255	237	92.9	.18	50.0
Spun	366	(3)			15.7	470	(2)			16.2
Manufactures, all other	158	85	54.0	.08	47.2	148	93	62.4	.07	46.2
Soap	523	491	93.9	.48	15.0	541	500	92.5	.39	15.0
Spices	47	11	24.3	.01	20.6	60	22	36.9	.02	22.7
Spirits and wines	(391)	(13)				(558)	(112)		(.09)	
Distilled, whisky	154	[20] 4	2.6	(5)	72.1	216	42	19.6	.03	68.4
Distilled, all other	137	5	3.5	(5)	146.2	167	48	28.7	.04	55.7
Wines, sparkling	12	(4)			62.7	33	1	4.0	(5)	41.6
Wines, all other	88	4	5.0	(5)	47.6	142	21	15.0	.02	45.8
Sporting goods	146	130	88.7	.13	26.3	101	97	95.3	.08	30.3
Starch	282	19	6.8	.02	23.4	236	36	15.2	.03	20.4
Stone and manufactures	114	84	73.8	.08	17.7	51	31	61.3	.02	18.1
Straw, palm leaf and manufactures	77	(3)			17.2	94	2	1.6	(5)	25.0
Sugar and molasses	(423)	(178)		(.17)		(534)	(401)		(.31)	
Refined sugar	324	84	25.8	.08	30.8	490	360	73.5	.28	18.5
All other	99	94	94.3	.09	18.8	44	41	92.3	.03	19.5

Tin and manufactures of	58	47	81.6	.05	10.2	147	33	22.6	.03	10.2
Tobacco	(1,579)	(1,410)		(1.36)		(1,702)	(1,437)		(1.11)	
Cigarettes	703	703	99.9	.68	422.7	675	674	99.9	.53	229.6
Cigars	(8)					(8)				
Leaf	447	309	69.0	.30	262.0	548	333	60.8	.25	222.1
Plug	342	342	100.0	.33	114.8	300	300	100.0	.23	119.4
Smoking	87	56	63.8	.05	99.5	179	130	72.9	.10	92.9
All other	(8)					(8)				
Toys	158	44	27.6	.04	26.2	146	31	21.3	.02	25.8
Trunks, valises, and traveling bags	107	12	11.2	.01	25.0	129	28	22.0	.02	25.0
Turpentine, spirit	15	15	98.5	.01	10.0	32	31	96.6	.02	10.0
Umbrellas and parts	179	15	85.0	.01	29.1	140	21	14.9	.02	29.8
Vegetables	(1,597)	(463)		(.45)		(1,487)	(476)		(.37)	
Canned	257	211	82.0	.20	15.1	275	241	87.7	.19	15.2
Dried	307	68	22.2	.07	11.0	226	68	30.1	.05	9.5
Fresh	753	71	9.5	.07	13.1	720	66	9.2	.05	18.4
All other	280	113	40.2	.11	20.2	266	101	38.0	.08	19.6
Vessels	9	7	74.9	.01	50.0	55	33	60.6	.03	50.0
Vessels, repairs to	82	37	44.9	.04	29.9	138	98	71.4	.08	12.0
Vinegar	10	8	84.5	.01	20.1	10	9	84.3	.01	12.6
Wax	(284)	(106)		(.11)		(192)	(57)		(.04)	
Mineral	243	98	40.4	.10	10.0	172	53	30.8	.04	10.0
All other	41	8	40.4	.01	10.6	20	4	22.1	(5)	10.8
Wood	(451)	(300)		(.28)		(782)	(600)		(.47)	
Cigar-box shooks	35	34	98.8	.03	15.0	3	3	91.9	(5)	15.0
Lumber	154	109	70.9	.10	15.8	340	280	82.2	.22	21.4
Ties for railways	(3)					34	34	100.0	.03	None
Timber	7	5	70.5	(2)	14.2	5	2	40.7	(5)	20.3
All other manufactures, except furniture	255	152	59.5	.15	30.5	400	281	70.4	.22	26.4
Wool	(892)	(479)		(.46)		(1,236)	(1,088)		(.85)	
Cloth	539	250	46.3	.24	35.0	921	836	90.8	.65	35.0
Clothing and other wearing apparel	94	77	81.8	.07	37.8	134	122	91.4	.10	37.9
Waste	38	3	7.3	(2)	10.0	34	3	10.0	(5)	10.0
All other and manufactures	221	149	67.8	.15	39.8	147	127	86.5	.10	36.7
Zinc	(24)	(15)		(.01)		(49)	(46)		(.03)	
Pigs, leaves, and sheets	16	11	69.8	.01	10.0	45	44	97.7	.03	10.0
All other manufactures	8	4	42.3	(2)	18.7	4	2	60.8	(5)	19.5
Various	(1,501)	(211)		(.20)		(3,334)	(593)		(.46)	
Animals, live	539	2	.4	(5)	7.5	1,183	8	.7	.01	8.7
Artificial flowers and fruits	9	3	28.7	(5)	50.0	8	3	38.2	(5)	50.0
Candles	21	(8)	3.2	(5)	20.0	78	11	14.6	.01	20.0
Diamonds	365	(22)			15.0	808	32	3.9	.02	15.0
Fans, not electric or mechanical	37	(8)	.8	(5)	35.0	33	1	3.8	(5)	35.0
Precious and semiprecious stones, pearls, and imitations	28	(8)	.7	(5)	18.7	99	10	10.4	.01	16.1
Tea	131	5	3.9	(5)	41.6	128	11	8.4	.01	
Household and personal effects	74	49	65.7	.05	None.	83	57	68.5	.04	None.
Returned articles, growth or product of Philippine Islands	39	16	40.7	.02	None.	246	25	10.1	.02	None.
All other articles	258	136	52.6	.13	32.3	668	435	65.2	.34	20.1

Footnotes at end of table.

TABLE 39.—*Annual average values of Philippine imports from all sources and from United States and possessions, July 1, 1910–Dec. 31, 1926, by commodities and approximate levels of tariff preference*—Continued

[Values in thousands of dollars; i. e., 000 omitted]

Commodity	1915–1918, annual average 4 calendar years					July 1, 1910–Dec. 31, 1914, annual average 4½ years				
	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports	Estimated ad valorem equivalent of preference	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports	Estimated ad valorem equivalent of preference
			Per cent	*Per cent*	*Per cent*			*Per cent*	*Per cent*	*Per cent*
Aeroplanes and parts	(4)	(4)			20.0	(4)	(4)			20.0
Agricultural implements and parts	$83	$72	87.1	0.11	15.0	$47	$29	61.6	0.05	15.0
Aluminum and manufactures	10	8	81.5	.01	22.1	12	6	50.2	.01	25.0
Apparatus and instruments	(610)	(495)		(.76)		(725)	(392)		(.75)	
Electric	296	282	95.4	.44	13.1	287	254	88.4	.48	12.7
Motion picture, and films	188	110	58.4	.17	35.0	293	51	17.3	.10	35.0
Scientific	21	16	77.2	.02	25.0	49	26	53.3	.05	25.0
Other	105	87	82.5	.13	20.3	96	61	64.0	.12	22.5
Automobiles and parts, including tires	1,783	1,766	99.1	2.72	22.0	943	711	75.4	1.35	20.0
Blacking and other shoe dressing	23	23	96.2	.04	25.0	23	22	95.9	.04	24.0
Brass	(254)	(167)		(.25)		(240)	(125)		(.24)	
Machinery	6	3	52.3	.01	20.0	21	7	32.0	.01	20.0
Pins	36	29	80.6	.04	25.0	16	6	39.1	.01	25.0
Sheets	20	3	14.8	(5)	10.0	5	3	50.8	.01	10.0
Wire	11	2	20.2	(5)	15.0	12	4	34.7	.01	15.0
Other manufactures	181	130	72.1	.20	19.1	186	105	56.5	.20	21.4
Breadstuffs	(9,340)	(1,018)		(1.57)		(9,014)	(1,322)		(2.51)	
Flour, wheat	2,095	818	39.0	1.26	8.3	1,725	1,113	64.6	2.11	10.5
Malted milk	(7)	(7)				(7)	(7)			
Rice	6,714	(8)	(5)	(5)	25.9	6,672	(4)	(5)	(5)	26.3
Other	531	200	37.7	.31	14.3	617	209	33.9	.40	15.0
Bricks	18	5	27.4	.01	10.0	20	3	14.6	.01	10.0
Brooms and brushes	61	36	59.1	.06	43.4	52	32	62.0	.06	41.2
Buttons	62	16	25.3	.02	35.2	50	6	11.9	.01	43.2
Carbonated and similar beverages	19	15	79.0	.02	10.4	17	14	78.6	.03	9.9
Cars, carriages and other vehicles	(271)	(220)		(.33)		(507)	(283)		(.55)	
Carriages for passengers	20	19	96.4	.03	20.0	27	13	49.8	.03	20.0
Cars for steam railways, and parts	40	2	5.3	(5)	10.0	182	52	28.4	.10	10.0
Cars for other railways	61	61	99.5	.09	10.0	61	32	52.9	.06	10.0
Cycles and parts	103	92	89.3	.14	20.0	129	100	78.0	.19	20.0
Wagons and carts for transporting merchandise	14	13	96.1	.02	15.0	43	29	67.7	.06	15.0
Wheelbarrows, pushcarts, and hand trucks	16	16	99.7	.02	15.0	21	20	97.4	.04	15.0
All other	17	17	98.8	.03	20.0	44	37	82.8	.07	20.0
Celluloid and manufactures	10	7	70.1	.01	40.4	36	27	74.3	.05	39.0
Cement	375	2	.6	(5)	9.3	627	21	3.3	.04	12.0

Chemical and pharmaceutical products	(1,318)	(924)		(1.43)		(730)	(377)		(.71)			
Acids	68	43	62.8	.07	18.4	27	6	23.8	.01	18.0		
Dyestuffs and dyes	20	8	40.4	.01	29.5	37	1	3.7	(5)	28.9		
Fertilizers	29	10	33.4	.02	5.0	38	5	11.9	.01	5.0		
Medicines, patent and proprietary	185	114	61.8	.18	52.5	162	88	54.2	.17	50.1		
Soda, caustic	189	176	93.2	.27	4.6	[10] 38	[10] 7	17.6	.01	12.8		
All other chemicals, drugs, and medicines	827	573	69.3	.88	33.0	428	270	63.1	.51	23.9		
Clocks, watches, and parts	144	88	60.7	.14	25.0	114	58	51.0	.11	25.0		
Coal	1,651	31	1.9	.05	4.2	1,451	120	8.2	.23	8.9		
Cocoa or cacao, raw	369	(8)	.1	(5)	None.	270	(8)	(5)	(5)	None.		
Cocoa, chocolate, or cacao, prepared or manufactured	28	27	96.9	.04	25.3	20	17	82.9	.03	27.2		
Coffee, green or raw [11]	311	244	78.4	.38	14.2	283	176	62.2	.33	15.1		
Coffee, roasted or prepared	34	34	99.6	.05	22.0	65	64	99.6	.12	27.3		
Coke	21	2	11.2	(5)	.8	19	1	6.9	(5)	2.5		
Combs	192	144	75.4	.22	39.1	70	11	16.3	.02	44.6		
Confectionery	214	194	90.5	.30	25.0	86	53	61.9	.10	25.0		
Copper	(301)	(195)		(.30)		(242)	(137)		(.26)			
Sheets	86	11	12.7	.02	10.0	69	10	14.9	.02	10.0		
Wire, insulated	118	111	94.2	.17	11.2	73	69	94.1	.13	10.2		
All other manufactures	97	73	75.8	.11	17.5	100	58	57.7	.11	18.2		
Copra	32	(4)				[14]						
Cork and manufactures	24	15	64.1	.02	15.0	33	16	47.5	.03	16.9		
Cotton	(17,227)	(12,141)		(18.73)		(10,561)	(5,538)		(10.50)			
Cloth, bleached	4,121	3,597	87.3	5.55	[15] 17.5	2,433	1,522	62.6	2.89	[15] 25.0		
Cloth, dyed or yarn dyed	4,125	3,098	75.1	4.78	[15] 17.5	2,303	1,202	52.2	2.28	[15] 25.0		
Cloth, printed	3,265	3,118	95.5	4.81	[15] 19.2	1,889	1,489	78.8	2.82	[15] 27.5		
Cloth, unbleached	775	501	64.6	.77	[15] 18.2	360	293	81.3	.56	[15] 26.0		
Handkerchiefs	168	67	40.1	.10	21.1	164	28	17.0	.05	23.8		
Knit goods and wearing apparel	1,326	314	23.7	.48	25.0	951	114	12.0	.22	25.0		
Other wearing apparel [16]	613	342	55.7	.53	28.3	364	227	62.5	.43	30.2		
Raw	131	114	86.6	.18	None.	94	92	98.0	.17	None.		
Thread	556	458	82.3	.71	25.0	439	332	75.8	.63	25.0		
Yarn	1,033	5	.5	.01	16.5	869	1	.1	(5)	15.7		
All other manufactures	1,114	527	47.2	.81	30.4	695	238	34.2	.45	35.4		
Chinaware, earthenware, and stoneware	(265)	(14)		(.02)		(191)	(17)		(.03)			
Chinaware	122	5	4.2	.01	33.2	46	4	7.6	.01	37.2		
Earthenware and stoneware	143	9	6.3	.01	29.6	145	13	8.7	.02	26.8		
Dairy products	(1,248)	(690)		(1.06)		(1,137)	(171)		(.32)			
Butter	188	61	32.3	.09	7.3	237	2	.9	(5)	10.3		
Cheese	44	16	35.6	.02	15.0	64	2	2.6	(5)	15.0		
Milk	1,016	613	60.3	.95	10.3	836	167	20.0	.32	10.0		
Eggs	380	(8)				362	(4)					
Electric incandescent lamps	61	46	76.4	.07	10.0	49	13	26.8	.02	10.0		
Explosives	234	218	93.1	.34	31.9	674	662	98.3	1.26	27.6		
Feed	(126)	(86)		(.13)		(295)	(197)		(.37)			
Fodder	39	(8)		(5)	5.0	96	(8)		(5)	5.0		
Hay	87	86	98.7	.13	5.0	199	197	99.1	.37	5.0		
Fiber, vegetable	(1,280)	(559)		(.86)		(555)	(96)		(.78)			
Bags	235	(8)				90	(8)					
Cloth	146	12	8.4	.02	19.0	162	4	2.7	.01	26.7		
All other manufactures	899	547	60.9	.84	15.3	303	92	30.5	.17	20.9		

Footnotes at end of table.

TABLE 39.—*Annual average values of Philippine imports from all sources and from United States and possessions, July 1, 1910–Dec. 31, 1926, by commodities and approximate levels of tariff preference*—Continued

Commodity	1915–1918, annual average 4 calendar years					July 1, 1910–Dec. 31, 1914, annual average 4½ years				
	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports	Estimated ad valorem equivalent of preference	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports	Estimated ad valorem equivalent of preference
			Per cent	*Per cent*	*Per cent*			*Per cent*	*Per cent*	*Per cent*
Fish	(1,127)	(838)		(1.30)		(699)	(367)		(.70)	
Canned salmon	377	375	99.5	.58	15.0	330	330	100.0	.63	15.0
Canned, all other	565	438	77.5	.68	18.8	238	16	6.8	.03	15.0
Dried, smoked and cured	167	16	9.5	.02	11.5	112	9	8.4	.02	14.3
Fresh	6	5	77.8	.01	10.7	12	10	77.9	.02	15.2
All other and fish products	12	4	32.6	.01	33.5	7	2	30.8	(5)	30.1
Fruits	(423)	(204)		(.31)		(393)	(163)		(.30)	
Canned and preserved	130	87	67.2	.13	19.6	133	81	61.1	.15	20.0
Dried	46	33	70.9	.05	13.6	51	33	64.8	.06	14.3
Fresh	125	80	63.9	.12	15.6	106	47	44.7	.09	19.0
Nuts [19]	122	4	2.9	.01		103	2	2.0	(5)	25.0
Furniture	(90)	(72)		(.11)		(156)	(94)		(.18)	
Metal	40	38	94.6	.06	21.1	34	30	89.1	.06	18.4
Wood	50	34	68.4	.05	29.2	122	64	52.2	.12	28.9
Gasoline and lighter products of distillation	645	488	75.7	.75		237	204	86.0	.39	10.0
Glass and glassware	(487)	(146)		(.21)		(339)	(73)		(.14)	
Bottles	116	2	2.0	(5)	10.0	82	6	7.4	.01	10.0
Mirrors	73	41	55.7	.06	35.0	44	4	10.3	.01	35.0
Tableware and dishes	67	10	14.2	.01	26.7	[10] 53	[10] 11	20.5	.02	27.4
All other	231	93	40.5	.14	19.1	160	52	32.5	.10	27.1
Glue	36	24	67.2	.04	25.0	18	6	31.1	.01	25.0
Gold, platinum, and silver	(124)	(99)		(.15)		(149)	(89)		(.17)	
Jewelry	81	61	75.1	.09	26.4	97	49	50.7	.09	27.6
All other manufactures	43	38	88.6	.06	25.0	52	40	77.5	.08	25.0
Grease	28	27	96.1	.04	10.0	[10] 19	[10] 18	97.5	.03	10.0
Hair and manufactures	4	2	35.6	(5)	14.9	4	(8)	20.1	(5)	30.0
Hats, caps, and parts	256	162	63.4	.25	35.2	178	56	31.6	.11	40.1
Hides and skins	1	(8)	41.3	(5)	25.0	52	1	2.5	.02	25.0
Hops	12	12	97.8	.02	None.	19	3	17.2	.01	None.
Ink	46	39	83.6	.06	22.5	30	20	67.6	.04	20.6
Iron and steel	(6,594)	(5,777)		(8.92)		(6,848)	(4,897)		(9.28)	
Bars	516	498	96.4	.77	13.4	387	259	66.9	.49	15.4
Chains	37	30	81.6	.05	11.2	39	18	46.2	.03	12.2
Cutlery	153	96	63.0	.15		111	38	34.4	.07	27.8

Enameled ware (utensils, etc.)	131	14	11.1	.02	20.0	132	6	4.6	.01	20.0
Firearms	41	38	91.1	.06	40.0	276	274	99.5	.52	40.0
Machinery, sawmill and woodworking	54	51	94.7	.08	15.0	83	80	96.3	.15	15.0
Machinery, steam and other power engines and parts	538	463	86.0	.71	15.0	576	313	54.3	.59	15.0
Machinery, sugar	271	228	84.4	.35	15.0	498	274	55.1	.52	15.0
Machinery, all other	1,565	1,478	94.4	2.28	15.0	1,347	982	72.9	1.86	15.0
Nails, spikes, and tacks	299	280	96.6	.43	11.1	140	106	75.8	.20	10.2
Pipe and fittings	257	250	97.2	.39	12.4	312	252	80.9	.48	15.1
Pig iron	29	15	52.7	.02	None.	26	4	16.1	.01	None.
Rails, switches, fishplates, and sleepers	137	130	95.4	.20	6.1	360	273	75.7	.52	11.1
Sheets and plates	978	953	97.4	1.47	7.5	962	845	87.8	1.60	14.4
Structural	135	131	96.9	.20	18.2	295	261	88.5	.50	24.0
Tools	261	233	89.2	.37	15.0	237	162	68.6	.31	15.0
Wire and manufactures of	298	268	89.7	.41	12.5	259	205	78.9	.39	13.8
All other manufactures	903	621	68.8	.96	15.9	808	545	67.4	1.03	17.0
Lamps, chandeliers, and all other illuminating devices, except electric	141	81	57.7	.13	24.0	121	47	38.7	.09	21.2
Lead and manufactures	67	60	89.4	.09	13.7	63	37	58.4	.07	14.6
Leather	(1,511)	(1,384)	----------	(2.15)	----------	(1,187)	(1,053)	----------	(2.00)	----------
Boots and shoes	923	891	96.6	1.38	17.9	690	652	94.6	1.24	17.6
Other manufactures	166	101	60.6	.16	32.6	227	151	66.7	.29	30.1
Unmanufactured	422	392	93.0	.61	13.9	270	250	92.3	.47	14.7
Malt	116	105	90.4	.16	None.	64	6	8.7	.01	None.
Malt liquors	49	11	23.0	.02	17.7	105	43	41.0	.08	21.0
Matches	247	(8)	----------	----------	92.5	.63	(8)	----------	----------	160.0
Mineral waters	50	(8)	----------	----------	5.0	45	(8)	----------	----------	10.2
Meat products	(1,588)	(352)	----------	(.54)	----------	(2,044)	(606)	----------	(1.16)	----------
Canned	177	140	79.0	.22	17.8	308	245	79.5	.46	18.4
Dried, smoked, or cured	290	40	13.7	.06	8.4	286	85	29.7	.16	12.3
Fresh	793	19	2.3	.03	4.6	1,020	20	2.0	.04	6.9
Lard and substitutes	298	139	46.6	.21	9.8	380	242	63.7	.46	12.7
All other	30	14	45.7	.02	24.6	50	14	29.2	.03	25.3
Metals, metal compositions, and manufactures thereof, n. e. s.	31	27	87.8	.04	22.3	30	22	75.6	.04	20.9
Musical instruments and parts	80	52	65.1	.08	25.3	99	37	36.9	.07	25.0
Oileloths and manufactures	93	86	92.1	.13	15.3	50	35	70.0	.07	16.4
Oils, animal	10	8	75.3	.01	15.6	16	9	60.7	.02	14.9
Oils, mineral	(1,505)	(1,216)	----------	(1.88)	----------	(1,425)	(1,260)	----------	(2.38)	----------
Asphaltum	(4)	----------	----------	----------	----------	(4)	----------	----------	----------	----------
Crude	33	3	9.9	(5)	13.1	8	2	23.3	(5)	12.2
Illuminating	1,173	933	79.6	1.44	10.0	1,242	1,099	88.5	2.08	12.0
Lubricating	273	257	94.1	.40	10.0	152	148	97.3	.28	10.0
Residuum, tar (all other except lighter products)	26	23	88.3	.04	10.0	23	11	44.8	.02	10.0
Oils, vegetable	302	117	38.6	.18	15.6	254	15	5.9	.03	15.1
Oils, volatile or essential	26	6	24.0	.01	50.0	21	1	6.0	(5)	50.0
Paints, pigments, and varnishes	(429)	(342)	----------	(.53)	----------	(278)	(146)	----------	(.28)	----------
Paints and pigments	393	310	78.9	.48	23.4	250	125	50.0	.24	22.6
Varnishes	36	32	88.2	.05	15.0	28	21	77.5	.04	15.0

Footnotes at end of table.

TABLE 39.—*Annual average values of Philippine imports from all sources and from United States and possessions, July 1, 1910–Dec. 31, 1926, by commodities and approximate levels of tariff preference*—Continued

Commodity	1915–1918, annual average 4 calendar years					July 1, 1910–Dec. 31, 1914, annual average 4½ years				
	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports	Estimated ad valorem equivalent of preference	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports	Estimated ad valorem equivalent of preference
			Per cent	*Per cent*	*Per cent*			*Per cent*	*Per cent*	*Per cent*
Paper	(1,347)	(777)		(1.19)		(796)	(446)		(.85)	
Cigarette	382	6	1.6	.01	15.0	144	(6)	.1	(5)	15.0
Printing	274	259	94.6	.40	10.0	183	159	87.0	.30	10.0
Wrapping	156	119	76.2	.18	15.5	77	35	45.9	.07	15.3
Writing and envelopes	199	171	85.7	.26	16.2	132	100	75.4	.19	16.2
All other and manufactures	336	222	66.2	.34	19.6	260	152	58.3	.29	20.0
Pencils	84	72	86.6	.11	15.0	42	26	61.9	.05	15.0
Perfumery and cosmetics	293	203	69.2	.31	40.0	193	75	39.0	.14	40.0
Phonographs, records, materials for, etc	83	79	95.8	.12	35.0	61	56	91.3	11	35.0
Photographic equipment and supplies	108	97	89.8	.15	20.8	97	84	85.9	.16	20.2
Plated ware, gold, and silver	(271)	(264)		(.40)		(125)	(105)		(.20)	
Jewelry	199	197	99.1	.30	25.3	77	65	84.2	.12	27.3
All other	72	67	93.9	.10	68.4	48	40	82.4	.08	47.6
Printed matter	(493)	(362)		(.56)		(504)	(267)		(.51)	
Books	317	270	85.2	.42	10.0	306	224	73.2	.42	10.0
Lithographs and similar prints	105	51	49.0	.08	24.4	110	14	12.8	.03	23.1
Other	71	41	42.2	.06	22.5	88	29	33.3	.06	23.3
Roofing of felt and similar material	38	33	87.5	.05	9.3	17	13	74.9	.02	16.2
Rubber and manufactures	400	368	91.9	.57	20.5	300	264	87.9	.50	18.4
Salt	57	5	8.0	.01	25.0	31	4	13.0	(5)	25.0
Sanitary appliances	67	50	74.2	.08	19.7	78	75	96.6	.14	16.9
Seeds	14	3	20.0	(5)	7.0	16	(6)	5.3	(5)	6.9
Silk	(1,658)	(588)		(.90)		(860)	(108)		(.21)	
Cloth	588	341	58.1	.53	40.0	148	9	6.2	.02	40.0
Clothing and other wearing apparel	175	99	56.8	.15	50.0	190	58	30.3	.11	50.0
Handkerchiefs	100	(6)			50.0	64	(6)			50.0
Plushes and velvets	162	2	1.4	(5)	40.0	71	(6)	.2	(5)	40.0
Ribbon	122	100	81.5	.15	50.0	74	27	36.0	.05	50.0
Spun	435	(6)				213	(6)			
Manufactures, all other	76	46	60.1	.07	46.3	100	14	14.2	.03	47.0
Soap	431	310	71.9	.48	15.0	357	210	58.7	.40	15.0
Spices	49	16	32.1	.02	21.4	31.	7	21.6	.01	25.6
Spirits and wines	(302)	(83)		(.13)		(325)	(73)		(.13)	
Distilled, whisky	115	44	37.9	.07	106.9	110	55	50.0	.10	122.0

Distilled, all other	74	18	23.9	.03	88.0	72	11	16.1	.02	129.6
Wines, sparkling	11	1	11.0	(5)	70.3	23	(5)	2.7	(5)	97.7
Wines, all other	102	20	19.6	.03	53.2	120	7	6.2	.01	45.6
Sporting goods	97	94	96.8	.15	33.5	(21)				
Starch	110	15	13.2	.02	24.7	31	5	17.5	.01	37.5
Stone and manufactures	14	6	44.3	.01	16.2	17	7	39.2	.01	23.6
Straw, palm leaf and manufactures	62	(8)			24.0	60	(8)			28.2
Sugar and molasses	(94)	(67)		(.11)		(317)	(102)		(.20)	
Refined sugar	81	56	69.4	.09	37.0	302	89	29.6	.17	45.8
All other	13	11	83.5	.02	27.5	15	13	90.0	.03	30.4
Tin and manufactures of	97	14	13.9	.02	10.1	45	11	24.8	.02	11.2
Tobacco	(549)	(461)		(.71)		(247)	(197)		(.32)	
Cigarettes	124	123	99.9	.19	270.1	27	27	99.7	(5)	185.7
Cigars	(8)					2	2	99.7	(5)	230.3
Leaf	102	44	43.6	.07	142.7	35	4	12.5	.01	396.0
Plug	211	210	100.0	.32	166.6	79	79	100.0	.15	173.9
Smoking	112	84	75.3	.13	103.2	102	85	83.2	.16	123.2
All other	(8)					2	(8)	65.5	(5)	200.0
Toys	110	42	37.8	.06	28.7	69	15	22.2	.03	28.2
Trunks, valises, and traveling bags	63	9	13.9	.01	25.0	59	19	32.2	.04	25.0
Turpentine, spirit	16	14	87.4	.02	10.0	27	22	80.8	.04	10.0
Umbrellas and parts	148	34	23.1	.05	26.9	69	4	6.2	.01	28.2
Vegetables	(896)	(227)		(.36)		(768)	(201)		(.38)	
Canned	155	115	74.3	.18	16.3	178	110	62.1	.21	15.4
Dried	177	43	24.4	.07	11.2	119	28	23.1	.05	15.0
Fresh	406	4	1.0	.01	31.3	371	10	2.7	.02	35.6
All other	158	65	41.5	.10	23.7	100	53	52.7	.10	27.9
Vessels	9	4	46.6	.01	50.0	28	7	24.5	.01	50.0
Vessels, repairs to	54	17	31.3	.03	19.1	78	5	6.6	.01	47.0
Vinegar	5	4	75.0	.01	19.0	5	4	75.2	.01	21.1
Wax	(147)	(60)		(.09)		(118)	(62)		(.11)	
Mineral	125	58	46.3	.09	10.5	100	60	60.0	.11	10.0
All other	22	2	9.6	(5)	10.2	18	2	13.8	(5)	10.0
Wood	(470)	(362)		(.56)		(661)	(453)		(.86)	
Cigar-box shooks	19	8	44.4	.01	14.7	78	(5)	.4	(5)	15.0
Lumber	134	127	95.2	.20	19.5	359	349	97.3	.66	17.3
Ties for railways	(8)					40	12	29.2	.02	6.6
Timber	23	17	70.8	.03	19.6	43	30	69.2	.06	18.3
All other manufactures, except furniture	294	210	71.3	.32	26.1	141	62	44.3	.12	27.2
Wool	(428)	(320)		(.49)		(361)	(147)		(.28)	
Cloth	252	197	78.3	.30	35.0	139	7	4.8	.01	35.0
Clothing and other wearing apparel	107	95	88.6	.15	39.3	124	103	83.3	.20	37.0
Waste	27	(8)	2.8	(5)	10.0	16	(8)	3.2	(5)	10.0
All other and manufactures	42	28	66.9	.04	35.1	82	37	45.7	.07	38.1
Zinc	(44)	(32)		(.05)		(28)	(7)		(.02)	
Pigs, leaves, and sheets	29	28	94.4	.04	10.0	21	4	18.2	.01	10.0
All other manufactures	15	4	26.4	.01	17.2	7	3	44.4	.01	15.1

Footnotes at end of table.

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TABLE 39.—*Annual average values of Philippine imports from all sources and from United States and possessions, July 1, 1910–Dec. 31, 1926, by commodities and approximate levels of tariff preference*—Continued

Commodity	1915–1918, annual average 4 calendar years					July 1, 1910–Dec. 31, 1914, annual average 4½ years				
	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports	Estimated ad valorem equivalent of preference	Imports from all sources	Imports from United States and possessions	Proportion from United States and possessions	Ratio to total imports	Estimated ad valorem equivalent of preference
			Per cent	*Per cent*	*Per cent*			*Per cent*	*Per cent*	*Per cent*
Various	(1,295)	(328)	----------	(.49)	----------	(1,614)	(274)	----------	(.54)	----------
Animals, live	283	1	.5	(5)	12.2	724	2	.3	(5)	7.4
Artificial flowers and fruits	5	1	25.2	(5)	50.0	7	2	29.1	(5)	50.0
Candles	31	8	26.2	.01	20.0	43	4	8.4	.01	20.0
Diamonds	300	8	2.7	.01	15.0	290	(8)	.3	(5)	15.0
Fans, not electric or mechanical	37	(8)	.4	(5)	35.0	21	(3)	1.7	(5)	35.0
Precious and semiprecious stones, pearls and imitations	50	3	5.8	(5)	15.2	23	(8)	3.2	(5)	17.5
Tea	90	(8)	.6	----------	----------	73	9	11.9	.02	----------
Household and personal effects	34	19	56.3	.03	None.	65	43	65.6	.08	None.
Returned articles, growth or product of Philippine Islands	49	13	27.7	.02	None.	19	4	21.1	.01	None.
All other articles	416	275	66.1	.42	22.4	349	219	62.8	.42	30.4

[1] This tariff preference results from the duty-free admission of United States products (since Aug. 5, 1909) and is therefore equal to the rate of duty payable on similar articles if imported from other countries.
[2] Indicates the relative importance of imports of this item from United States and possessions among Philippine total imports from all sources.
[3] Annual average, 1920–21.
[4] None indicated.
[5] Less than one one-hundredth of 1 per cent.
[6] Annual average, 1925–26.
[7] Not separately indicated in statistics.
[8] Less than $1,000.
[9] Included with cars for other railways.
[10] 2½-year average—1913, 6 months, 1913 and 1914.
[11] Principally from Hawaii.
[12] One year, 1926, only.
[13] From Guam.
[14] Copra reported with nuts prior to 1917.
[15] Estimated.
[16] Includes certain cotton canvas shoes.
[17] 2-year average, no imports from United States reported 1924–1926.
[18] 2-year average, 1925–26.
[19] Including copra prior to 1917.
[20] 4-year average; no imports from United States in 1926.
[21] Not separately indicated prior to June 1, 1918.
[22] None indicated, 1922–1926.

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UNITED STATES TARIFF COMMISSION

CENSUS OF DYES

AND OF

OTHER SYNTHETIC ORGANIC CHEMICALS

1930

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CONTENTS

Page

Introduction VII

PART I

Summary of the census of dyes and of other synthetic organic chemicals, 1930:
- Introduction 3
- Summary of domestic production, 1930—
  - Crudes 4
  - Intermediates 4
  - Coal-tar dyes 5
  - Statistics of production and sales 6
  - Synthetic organic chemicals not derived from coal tar 7
- International dye trade in 1930 7

PART II

Production of dyes and coal-tar chemicals, 1930:
- Coal-tar crudes—
  - Coke and coal-tar—
    - Coke 11
    - Tar 11
  - Distillates of tar—
    - Agencies collecting statistics 13
    - Production in by-product coke ovens 13
    - Production by firms not primarily engaged in the operation of coke ovens 14
    - Production of certain crudes from all sources 15
  - Exports and imports 18
- Coal-tar intermediates—
  - Production 18
    - Aniline and derivatives 19
    - Benzene derivatives 19
    - Benzidine, dianisidine and tolidine 19
    - Naphthalene and derivatives 20
    - Anthraquinone 20
    - Condensation products 20
    - Phenol, cresylic acid, and resorcinol 20
    - Benzoates and salicylates 21
    - Phthalic anhydride and derivatives 21
    - Diphenyl and derivatives 21
    - Tricresyl and triphenyl phosphates 21
    - Organic metallic fungicides 21
    - New intermediates 22
  - Statistics of production and sales 22
  - Organic chemicals for mothproofing 30
- Dyes and other finished coal-tar products—
  - Introduction 32
  - Summary of production of dyes 32
    - Stocks on hand 33
    - Prices 34
    - Unit value of dyes produced, 1926–1930 36
    - Progress in dye manufacture—
      - Relation of production to consumption 36
    - Court and Treasury decisions 37
    - Imports of dyes, 1926–1931 (6 months) 38
    - Production and sales of dyes by chemical classes 40

Production of dyes and coal-tar chemicals, 1930—Continued.
Dyes and other finished coal-tar products—Continued.
Summary of production of dyes—Continued. Page
Production of dyes by classes of application 40
Acid dyes 42
Basic dyes 42
Direct dyes 42
Mordant and chrome dyes 43
Sulfur dyes 43
Vat dyes 43
Color-lake and spirit-soluble dyes 45
Food dyes 45
Export trade in dyes 45
Other finished coal-tar products—
Color lakes 46
Medicinals 46
Flavors and perfume materials 48
Synthetic resins 49
Photographic chemicals 50
Synthetic tanning materials 50
Statistics of production and sales 51
Dyes not classified by Colour Index number 64
Employees and rates of pay 66
Research work 68

PART III

Dyes and other finished coal-tar chemicals imported for consumption in the United States, 1930:
Introduction 71
Summary of imports of dyes 71

PART IV

Census of synthetic organic chemicals not derived from coal tar:
Introduction 79
Principal compounds produced in 1930—
Derivatives of ethylene, propylene, and butylene 79
Derivatives of acetylene 80
Solvents for lacquers 80
Methanol 80
Formaldehyde and hexamethylenetetramine 80
Synthetic ethyl alcohol 80
Higher alcohols by high-pressure synthesis 80
Acetone 81
Ethyl ether 81
Ethyl chloride and tetraethyl lead 81
Methyl chloride and new refrigerants 81
Citric acid and citrate of lime 81
Diethyl barbituric acid and derivatives 82
Synthetic resins 82
Xanthates 82
Increases in production 83
Decreases in production 83
New products 83
Statistics of production, sales, and imports 83

PART V

International dye trade:
Introduction 91
World production of dyes 91
Competitive conditions 92
Exports from producing countries 92
International imports 93
Notes on the dye trade of foreign countries—
Great Britain 94
Germany 96
Switzerland 96
France 96

International dye trade—Continued.
Notes on the dye trade of foreign countries—Continued. Page
Italy 96
Japan 96
Spain 97
Poland 97

Part VI

Statistics of imports and exports 101
Directory of manufacturers of dyes and other synthetic organic chemicals, 1930 109

Statistical Tables

1. Dyes and coal-tar chemicals: Summary of production and sales, 1928–1930 6
2. Synthetic organic chemicals not of coal-tar origin: Production and sales, 1921–1930 7
3. By-product and beehive coke: Production in the United States, 1913 and 1925–1930 11
4. Coke-oven, coal-gas, water-gas, and oil-gas tar: Production and sales in the United States, 1925–1930 12
5. Coke-oven tar: Production in the United States and percentage sold and used, 1919–1930 12
6. Coal-tar crudes obtained as by-products in coke-oven operations, 1928–1930 13
7. Coal-tar crudes: Production, 1930, by firms not primarily engaged in the operation of coke-oven plants and gas houses 14
8. Total commercial production of benzene, toluene, solvent naphtha, naphthalene, and creosote oil from all sources in the United States, 1925–1930 17
9. Coal-tar intermediates: Domestic sales price, 1924–1930; invoice price of same intermediates imported, 1914 23
10. Coal-tar intermediates: Production and sales, 1930 23
11. Coal-tar intermediates: Production, by groups, according to unit values, 1926–1930 32
12. Coal-tar dyes: Production and sales, 1914 and 1920–1930 33
13. Coal-tar dyes: Stocks on hand January 1, 1930 and January 1, 1931 33
14. Domestic sales price of certain coal-tar dyes, 1928–1930, compared with invoice value of dyes of the same kind imported in 1914 35
15. Coal-tar dyes: Production, by groups, according to unit value, 1926–1930 36
16. Coal-tar dyes: Imports into the United States, 1926–1931 (6 months) 38
17. Coal-tar dyes: Production and sales, by chemical classification, with index numbers of production and sales, using the year 1928 as a base 39
18. Comparison of imports of dyes with production and sales, by classes of application, 1928–1930 41
19. Vat dyes, other than Indigo: Domestic sales, imports, and apparent consumption in the United States, 1914 and 1925–1930 44
20. Coal-tar dyes: Exports from the United States, 1925–1930 45
21. Colors, dyes, and stains: Domestic exports by months, 1928–1931 (6 months) 46
22. Coal-tar medicinals: Production of selected list, 1923–1930 47
23. Synthetic resins: Production and sales, 1927–1930 49
24. Dyes and other finished coal-tar products: Production and sales, 1930 51
25. Employees and rates of pay in the coal-tar dye and chemical industry, 1930 67
26. Coal-tar dyes: Imports into the United States, by country of shipment, 1928–1930 72
27. Coal-tar dyes imported into the United States, classified by methods of application, 1929, 1930 72
28. Coal-tar dyes of each class, according to method of application, imported in largest quantity during the calendar year 1930, compared with corresponding imports in 1929 72
29. Coal-tar medicinals and pharmaceuticals: Imports into the United States, 1930 74

Page

30. Synthetic aromatic chemicals of coal-tar origin: Imports into the United States, 1930 ---- 75
31. Photographic chemicals, intermediates, and other coal-tar products: Imports into the United States, 1930 ---- 75
32. Certain synthetic organic chemicals of noncoal-tar origin: Imports and production, 1928–1930 ---- 83
33. Synthetic organic chemicals of noncoal-tar origin: Production and sales, 1930 ---- 84
34. Coal-tar dyes: Production by chief producing countries, 1926–1930 ---- 91
35. Coal-tar dyes: Exports from chief producing countries, 1913 and 1929, 1930 ---- 93
36. Coal-tar dyes: Imports into the chief consuming countries, 1913 and 1929, 1930 ---- 94
37. United Kingdom: Production of dyes, 1928–1930 ---- 95
38. Coal-tar products: Imports entered for consumption, 1929, 1930 ---- 101
39. Coal-tar products: General imports, 1929, 1930 ---- 104
40. Coal-tar products: Domestic exports, 1929, 1930 ---- 106

INTRODUCTION

This report is a survey of the domestic dye and of the synthetic organic chemical industry in 1930. It presents the results of a special investigation made by the United States Tariff Commission with respect to the production in the United States of coal-tar dyes and of other synthetic organic chemicals of coal-tar and of noncoal-tar origin. It includes summary tabulations of coal-tar dyes and of other finished coal-tar chemicals imported into the United States and summaries of official statistics of imports and exports of coal-tar dyes by the large consuming and producing nations of the world.

The survey is divided into six parts, as shown in the Table of Contents (pp. III to V).

In the preparation of this report the Tariff Commission had the services of Dexter North, Wilbur F. Sterling, Paul K. Lawrence, Bertha M. Robertson, and Rachel D. Shindel, of the chemical division of the commission's staff, and of others.

PART I

SUMMARY OF THE CENSUS OF DYES AND OF OTHER SYNTHETIC ORGANIC CHEMICALS, 1930

Part I

SUMMARY OF THE CENSUS OF DYES AND OF OTHER SYNTHETIC ORGANIC CHEMICALS, 1930

Introduction

Beginning with 1917, the United States Tariff Commission has prepared annually a statistical survey of the American coal-tar chemical industry.[1] In 1921 the scope of this work was extended to include synthetic organic chemicals not of coal-tar origin. This branch of the chemical industry has been covered in each succeeding census, including this issue.

The compilation of these statistical data was commenced primarily to supply adequate information for tariff consideration of coal-tar chemicals. The usefulness to governmental agencies and to the trade of comprehensive statistics of a complex and rapidly expanding branch of the chemical industry has warranted a continuation of this work.

This issue of the census has been abridged in order to expedite publication and to effect economies in printing. Detailed tabulation of imports of dyes into the United States has been omitted to avoid duplication of the monthly list of dye imports, published jointly by the Department of Commerce and the Tariff Commission. Statistics of production for prior years, omitted from this issue, may be obtained from previous editions.

The grouping of coal-tar chemicals in this report follows that of the tariff act of 1930, and conforms in general, although not in every detail, to common practice. Crudes, duty free under paragraph 1651, are prepared from crude coal tar; intermediates, dutiable at 40 per cent and 7 cents per pound and at 20 per cent and 3½ cents per pound under paragraph 27, are chemically manufactured from crudes; and dyes and other finished coal-tar products, dutiable at 45 per cent and 7 cents per pound [2] under paragraph 28, are prepared by chemical treatment from intermediates. "Other finished coal-tar products" include color lakes, photographic chemicals, medicinals, flavors, perfume materials, synthetic resins, synthetic tanning materials, and miscellaneous products. Explosives of coal-tar origin, although dutiable under paragraph 28, are not included in this census.

A summary of domestic production and sales of coal-tar products, 1928–1930, inclusive, appears in Table 1, page 6. Data for the years omitted are contained in the 1928 and 1929 issues of the census. The figures for 1930 were compiled from returns of 202 companies [3] and

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[1] Other reports prepared by the Tariff Commission relating to conditions in the dye industry include: (1) Costs of Production in the Dye Industry, 1918 and 1919, and (2) Dyes and Other Coal-Tar Chemicals, Dec. 12, 1918.

[2] Except Indigo and Sulfur black, which are dutiable at 20 per cent and 3 cents per pound.

[3] This census includes the production returns of 202 firms, 36 of which made synthetic organic chemicals of noncoal-tar origin only, and 166 made synthetic organic chemicals of coal-tar origin or of both coal-tar and noncoal-tar origin. The 156 firms who granted permission to publish their names are listed in the directory of manufacturers of dyes and other synthetic organic chemicals, p. 109.

are thought to form a complete record of the manufacture of such products. Data for separate items are given in as great detail as is possible without disclosing the operations of individual manufacturers. The policy of the commission is to omit production and sales figures for a product unless at least three firms report a substantial production. If the total is not well distributed among the three or more manufacturers, or if one or two producers report the bulk of the total, production or sales figures are not published.

Summary of Domestic Production, 1930

CRUDES

The total domestic production of coke in 1930 was 47,972,021 net tons, consisting of 45,195,705 tons, or 94.2 per cent, from by-product ovens, and 2,776,316 tons, or 5.8 per cent, from beehive ovens. The total output in 1930 was 20 per cent less than that in 1929.

Of the 647,485,929 gallons of coke-oven and coal-gas tar produced in 1930, 362,183,422 gallons were distilled by firms not primarily engaged in the operation of coke ovens or gas houses, and about 46,000,000 gallons were distilled by coke-oven operators in the manufacture of certain crudes, notably creosote oil. Most of the tar not distilled, about 37 per cent, was used as fuel and as road-paving material.

The total output of creosote oil in 1930 was 122,571,822 gallons, valued at $13,299,093, of which firms not primarily engaged in the operation of coke ovens or gas houses produced 96,891,940 gallons, valued at $11,052,104, and coke-oven operators, 25,679,882 gallons, valued at $2,246,989. The Tariff Commission, on March 4, 1931, instituted an investigation of the cost of production of creosote oil under the provisions of section 332 of the tariff act of 1930, in compliance with Senate Resolution 470.

The output of benzol decreased from 25,119,013 gallons in 1929 to 19,918,059 gallons in 1930. Over a million gallons more motor benzol were manufactured in 1930 than in 1929. The unit value of motor benzol decreased from 16 cents in 1929 to 14 cents in 1930.

The output of crude anthracene increased materially in 1930.

INTERMEDIATES

The total output of intermediates by 71 firms in 1930 was 290,760,532 pounds; 18 per cent less than the 354,487,718 pounds reported by 77 manufacturers in 1929. Part of this decrease is accounted for by changes in classification made to obtain more logical grouping of products and to conform more closely with tariff classification.

Benzoic acid USP, resorcinol USP, salicylic acid USP, benzoate of soda, benzoyl peroxide, and naphthol AS products classified as intermediates in 1929 are classified as finished coal-tar products in 1930. Including these items with intermediates, as in former years, the decrease in 1930 was 16.5 per cent.

The output of aniline decreased from 33,743,270 pounds in 1929 to 26,388,177 pounds in 1930, and the production of aniline salts declined about 10 per cent in the same period.

Refined naphthalene increased in production about 3 per cent in 1930. Many of the naphthalene derivatives were made in larger quantities in 1930 than in the preceding year.

The output of anthraquinone decreased about 30 per cent by quantity in 1930. The unit value of sales in 1930 was about 10 per cent less than in 1929.

Phenol (natural and synthetic) declined about 13 per cent in production in 1930 whereas cresylic acid increased in production about 19 per cent.

The output of phthalic anhydride was 6,693,000 pounds in 1930 as against 9,168,946 pounds in 1929.

The production of diphenyl increased about 55 per cent in quantity in 1930, and the unit value of sales decreased about 25 per cent.

COAL-TAR DYES

The output of dyes in 1930 by 50 firms was 86,480,000 pounds, a decrease of 22 per cent from the production of 111,421,505 pounds in 1929. The decrease was greatest in the cheaper dyes, produced in large amounts. Total sales were 89,971,599 pounds, valued at $38,621,610, as compared with 106,070,887 pounds, valued at $45,842,130, in 1929.

More than $100,000,000 are now invested in buildings and equipment and a total of 11,391 employees were reported to be engaged in the coal-tar chemical industry in 1930. Most of this development has occurred since 1914, only 528 persons then being engaged in the manufacture of coal-tar chemicals in the United States.

Of the apparent consumption of dyes in 1930, 93.8 per cent by weight and 82 per cent by value were supplied by domestic manufacturers.

About $3,432,000, or an amount equivalent to 5.3 per cent of total sales, was expended in research by the coal-tar chemical industry in 1930. It is significant that in an adverse business year, the number of dye research laboratories and the amount of money spent increased.

The weighted average value per pound of dyes sold in 1930 was 43 cents, the same as in 1929. The unit value of sales in 1930 does not reflect the general downward trend in dye prices, because of the production of relatively greater quantities of the higher priced dyes and a slight increase in the price of some of the bulk dyes, manufactured in large quantities.

Imports of dyes in 1930 were 4,114,882 pounds, with a foreign invoice value of $3,500,154 as against 6,437,147 pounds, valued at $5,374,085, in 1929. Germany and Switzerland supplied nearly all of the imported dyes. By classes of application our imports in 1930 were by weight: 41.70 per cent vat dyes; 21.99 per cent acid dyes; 19.69 per cent direct dyes; 6.08 per cent mordant and chrome dyes; and the remainder, basic, spirit-soluble, and sulfur dyes.

Exports of dyes in 1930 were 28,267,340 pounds, valued at $6,245,830 as against 34,130,325 pounds, valued at $7,279,086, in the preceding year. As in former years, the bulk of our exports consisted of the cheaper dyes, sold to far eastern countries.

STATISTICS OF PRODUCTION AND SALES OF INTERMEDIATES AND FINISHED PRODUCTS

TABLE 1.—*Dyes and coal-tar chemicals: Summary of production and sales*

	1928			
	Number of manufacturers	Production, quantity	Sales	
			Quantity	Value
		Pounds	*Pounds*	
Intermediates (total)	77	279,274,807	115,837,340	$24,126,473
Finished products (total)	125	143,563,099	140,796,814	65,762,945
Dyes	53	96,625,451	93,302,708	39,792,039
Color lakes	38	12,127,242	12,045,435	6,589,166
Medicinals	23	4,008,393	4,004,557	8,650,838
Flavors	14	1,746,350	1,966,467	1,296,034
Perfumes	18	1,577,718	1,619,476	1,000,001
Photographic chemicals	5	478,979	493,825	696,101
Synthetic phenolic resins	9	20,411,465	20,778,856	7,211,958
Synthetic tanning materials and miscellaneous	4	6,587,501	6,585,490	526,808

	1929			
	Number of manufacturers	Production, quantity	Sales	
			Quantity	Value
		Pounds	*Pounds*	
Intermediates (total)	77	354,487,718	148,711,591	$28,871,572
Finished products (total) [1]	120	167,175,703	158,698,300	77,247,361
Dyes	54	111,421,505	106,070,887	45,842,130
Color lakes	37	13,244,676	12,907,914	7,262,543
Medicinals	24	5,000,205	4,745,054	8,358,526
Flavors	10	2,292,450	2,253,414	3,517,182
Perfumes	16	1,599,430	1,480,368	1,082,602
Photographic chemicals	5	580,947	580,150	790,981
Synthetic resins	11	33,036,490	30,660,513	10,393,397
Synthetic tanning materials	2	----------	----------	----------
Research chemicals	3	----------	----------	----------
Miscellaneous products	1	----------	----------	----------

	1930			
	Number of manufacturers	Production, quantity	Sales	
			Quantity	Value
		Pounds	*Pounds*	
Intermediates (total)	71	290,760,532	124,349,333	$22,574,061
Finished products (total) [2]	129	141,064,546	135,058,742	65,534,688
Dyes	50	86,480,000	89,971,599	38,621,610
Color lakes	36	9,563,318	9,589,719	5,692,351
Medicinals	31	7,508,182	5,449,954	7,879,860
Flavors	14	2,010,012	2,030,601	2,738,704
Perfumes	18	1,042,232	1,018,867	745,208
Photographic chemicals	6	624,828	605,635	761,572
Synthetic resins	14	30,867,752	24,014,093	7,323,656
Synthetic tanning materials	2	----------	----------	----------
Research chemicals	3	2,968,222	2,378,274	1,771,727
Miscellaneous	15			

[1] Total for synthetic tanning materials, research chemicals, and miscellaneous products not included.
[2] Total for synthetic tanning materials not included.

SYNTHETIC ORGANIC CHEMICALS NOT DERIVED FROM COAL TAR

The output of synthetic organic chemicals not derived from coal tar was 609,363,028 pounds in 1930, a decrease of 3.8 per cent from the production in 1929. Sales in 1930 of 436,888,399 pounds, valued at $65,991,951, however, represented an increase of 7.8 per cent by weight and of 1.3 per cent by value over the preceding year.

Although the production of derivatives of ethylene, propylene, and butylene decreased about 30 per cent in 1930, sales increased about 28 per cent by weight and 30 per cent by value.

The output of lacquer solvents as a group declined about 15 per cent in 1930. The principal aliphatic compounds comprising this classification are butyl and amyl acetates, butyl and amyl alcohols, and ethyl acetate.

The production of 48,930,545 pounds of synthetic methanol in 1930 was more than 50 per cent in excess of the output in 1929 and exceeded for the first time the quantity made by wood distillation.

Among other compounds and groups of compounds showing increased output in 1930 were ethyl ether, ethyl and methyl chlorides, tetraethyl lead, diethyl barbituric acid and derivatives, and noncoal-tar synthetic resins.

Some of the compounds showing decreased output in 1930 were acetaldehyde, acetone, formaldehyde, and hexamethylenetetramine.

Features of primary interest were the commercial production for the first time of synthetic ethyl alcohol, higher alcohols, and certain new refrigerants.

Table 2 shows the production and sales of synthetic organic chemicals not derived from coal tar, 1921 to 1930, inclusive.

TABLE 2.—*Synthetic organic chemicals not of coal-tar origin: Production and sales*

Year	Production	Sales		Year	Production	Sales	
		Quantity	Value			Quantity	Value
	Pounds	*Pounds*			*Pounds*	*Pounds*	
1921	21,545,186	16,761,096	$7,226,068	1926	214,842,513	168,712,158	$29,719,270
1922	79,202,155	50,494,494	11,964,074	1927	280,992,825	201,548,089	36,600,628
1923	90,597,712	67,727,067	13,875,521	1928	384,564,836	257,077,856	45,928,945
1924	115,817,865	85,933,461	20,604,717	1929	633,192,215	405,185,980	65,117,651
1925	156,878,013	114,626,209	23,632,779	1930	609,363,028	436,888,399	65,991,951

INTERNATIONAL DYE TRADE IN 1930

Consideration of the international dye trade in this issue of the census is confined to a brief discussion of trade and important events in major producing and consuming nations and to a summary table of dye production and foreign trade.

The output of dyes by the principal producing nations in 1930 as compared with 1929 decreased by weight as follows: Germany, 6.6 per cent; the United States, 22 per cent; Great Britain, 24 per cent; Switzerland, 18 per cent; and France, 3 per cent.

Exports of dyes in 1930 from the following nations decreased by weight as follows: Germany, 3.4 per cent; the United States, 18 per cent; Great Britain, 32 per cent; Switzerland, 18 per cent; and France, 28 per cent. Exports from Italy in 1930 increased 27 per cent and those from Japan over 150 per cent.

The most important event in international dye trade in 1930 was the continuation for another year (until January 1, 1932) of the dye import regulation act by Great Britain.

PART II

PRODUCTION OF DYES AND OF COAL-TAR CHEMICALS, 1930

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Part II

PRODUCTION OF DYES AND OF COAL-TAR CHEMICALS, 1930

Coal-Tar Crudes

COKE AND COAL TAR

Coke.—The total domestic production of coke in 1930 was 47,972,021 net tons, a decrease of 20 per cent from the peak output of 59,883,845 tons in 1929. As about 80 per cent[1] of all coke is used in blast furnaces, decreased activity in the steel industry accounts for most of the decline in coke production in 1930. The aggregate output in 1930 consisted of 45,195,705 tons of by-product coke or 94.2 per cent of the total, and 2,776,316 tons of beehive coke, or 5.8 per cent of the total. The ratio of beehive to by-product coke in 1930 is the lowest on record. Since 1913, when 72.5 per cent of the total production of coke was manufactured in beehive ovens, the trend has been toward the increased use of by-product coke in blast furnaces, with the resulting recovery of valuable by-products, formerly wasted in the beehive process. In addition to their output of coke in 1930, by-product coke ovens produced 602,485,929 gallons of tar, 178, 325,-952 gallons of crude light oil, 670,960 short tons of ammonium sulfate, and 724,103,000,000 cubic feet of gas.

Table 3 shows the production of by-product and of beehive coke in 1913 and 1925–1930, inclusive. The figures for 1930 for by-product coke are taken from reports of the Bureau of Mines; and those for beehive coke are estimates based on the number of cars loaded for shipment.

Table 3.—*By-product and beehive coke: Production in the United States*

Year	Net tons produced			Per cent of total output	
	By-product	Beehive	Total	By-product	Beehive
1913	12,714,700	33,584,830	46,299,530	27.5	72.5
1925	39,912,159	11,354,784	51,266,943	77.9	22.1
1926	44,376,586	12,488,951	56,865,537	78.0	22.0
1927	43,884,726	7,207,417	51,092,143	85.9	14.1
1928	48,313,025	4,492,803	52,805,828	91.5	8.5
1929	53,411,826	6,472,019	59,883,845	89.2	10.8
930	45,195,705	2,776,316	47,972,021	94.2	5.8

Tar.—The total production of coke-oven and coal-gas tar in 1930 was 647,485,929 gallons, or 11 per cent less than was produced in the preceding year. Sales of tar from both sources in 1930 were 357,865,294 gallons, or about 55 per cent of the amount produced.

[1] Estimated by Bureau of Mines, Dept. of Commerce, in "Coke and By-products in 1928."

Firms primarily engaged in the distillation of tar consumed 362,183,422 gallons of tar in 1930; firms primarily engaged in the operation of coke ovens distilled about 46,000,000 [2] gallons, making a total of about 408,000,000 gallons, or 63 per cent of the quantity of tar produced in 1930. Most of the tar not distilled is consumed as fuel and as road-paving material.

Table 4 shows the production of coal tar from all sources and the quantity and value of sales from 1925 to 1930, inclusive. Table 5 shows the ratio of sales to production of coke-oven tar from 1919 to 1930, inclusive.

TABLE 4.—*Coke-oven, coal-gas, water-gas, and oil-gas tar: Production and sales in the United States*

[Compiled by the Bureau of Mines from reports of producers. The difference between production and sales is accounted for by tar used by the producer and by changes in stock]

	Coke-oven tar [1]	Coal-gas tar [2]	Total coal tar	Water and oil gas tar
Production (gallons):				
1925	480,848,814	([3])	534,848,814	([4])
1926	529,486,374	([3])	583,486,374	([4])
1927	546,859,205	([3])	600,859,205	([4])
1928	631,844,767	([3])	688,344,767	([4])
1929	680,864,366	47,329,311	728,193,677	[5] 117,601,208
1930	602,485,929	([3])	647,485,929	([4])
Sales (gallons):				
1925	240,160,986	49,175,979	289,336,965	[5] 61,471,124
1926	277,248,522	([3])	326,248,522	([4])
1927	305,898,176	51,266,279	357,164,455	[5] 83,479,339
1928	332,150,270	([3])	383,150,270	([4])
1929	333,557,501	45,495,026	379,052,527	[5] 75,545,630
1930	314,865,294	([3])	357,865,294	([4])
Value of sales:				
1925	$11,903,196	$2,750,719	$14,653,915	[5] $2,594,025
1926	14,103,760	([3])	16,803,760	([4])
1927	16,095,478	2,923,819	19,019,297	[5] 3,768,464
1928	17,544,797	([3])	20,454,797	([4])
1929	16,982,406	2,485,434	19,467,840	[5] 3,353,799
1930	15,562,963	([3])	17,927,963	([4])

[1] Includes tar produced in by-product coke ovens operated by city gas companies.
[2] The figures here given for coal-gas tar include only the operations of coal-gas retorts. For 1927 and 1929 revised census figures are used, obtained by subtracting from the totals for the manufactured gas industry, as published by the Bureau of the Census, the tar produced at by-product coke ovens operated by city gas companies.
[3] Estimate included in total.
[4] No data.
[5] As reported by the Bureau of the Census.

TABLE 5.—*Coke-oven tar: Production in the United States and percentage sold and used*

[Compiled by United States Geological Survey and Bureau of Mines from reports of operators]

Year	Coke-oven tar			Year	Coke-oven tar		
	Gallons produced	Per cent sold	Per cent used [a]		Gallons produced	Per cent sold	Per cent used [a]
1919	288,901,739	75.4	24.6	1925	480,848,814	49.9	50.1
1920	360,664,124	48.3	51.7	1926	529,486,374	52.4	47.6
1921	253,051,649	53.5	46.5	1927	546,859,205	55.9	44.1
1922	327,779,734	49.5	50.5	1928	631,844,767	52.6	47.4
1923	440,907,109	48.0	52.0	1929	680,864,366	49.0	51.0
1924	422,074,326	49.6	50.4	1930	602,485,929	52.3	47.7

[a] Not all the tar sold is taken by tar distillers. Of the 52.3 per cent sold in 1930, about 48.2 per cent went for refining into tar products and 4.1 per cent for use as fuel. Although no division of sales is available prior to 1929, it is clear that for some years a considerable proportion of the sales have gone for use as fuel.

[2] Estimate, based on the amount of tar distilled in 1929, and on the related output of creosote oil in 1929 and in 1930.

DISTILLATES OF TAR

Agencies collecting statistics.—Statistics of the domestic production of coal-tar crudes are collected jointly by the Tariff Commission, the United States Geological Survey, and the Bureau of Mines. Production by firms engaged primarily in the distillation of tar is reported to the Tariff Commission; that by firms primarily engaged in the operation of coke ovens, to the Bureau of Mines. Where tar-distilling operations were limited to recovery of simpler materials and conducted in conjunction with coke-oven plants, under the same corporate name, the Bureau of Mines collected and compiled the statistics for 1930. Where distillation was carried on by a separate corporation, reports were made to the Tariff Commission. For certain plants equipped to produce a complete run of refined tar products in coke-oven operations, the Bureau of Mines gathered the data on the production of creosote oil, pitch, and the standard light oil products; and the Tariff Commission, on the production of phenol and cresylic acid.

Production in by-product coke ovens.—Table 6 shows the production of coal-tar crudes obtained as by-products in coke-oven operations, 1928 to 1930, inclusive.

TABLE 6.—*Coal-tar crudes obtained as by-products in coke-oven operations*

[Bureau of Mines]

Product	Production	Sales		
		Quantity	Value	
			Total	Average
1928 [1]				
Tar—gallons	631, 844, 767	332, 150, 270	$17, 544, 797	$0. 053
Light oil and derivatives:				
Crude light oil—do	[2] 188, 597, 956	10, 334, 813	1, 158, 846	. 112
Benzol, crude and refined—do	21, 451, 748	21, 452, 973	4, 215, 752	. 197
Motor benzol—do	103, 051, 900	102, 935, 995	16, 832, 646	. 164
Toluol, crude and refined—do	16, 097, 856	16, 181, 650	5, 513, 624	. 341
Solvent naphtha (including xylol)—do	5, 587, 370	4, 471, 141	1, 047, 095	. 234
Other light oil products—do	3, 114, 531	1, 388, 106	111, 844	. 081
	[3] 149, 303, 405	156, 764, 678	28, 879, 807	. 184
Naphthalene, crude and refined—pounds	12, 182, 143	10, 937, 429	135, 693	. 012
Creosote oil (including distillate in coal-tar solution)—gallons	12, 386, 000	7, 377, 816	910, 318	
Phenol—do	57, 794	66, 607		
Pitch of tar—net tons	54, 131	1, 725		
Other products [4]				
1929 [1] [5]				
Tar—gallons	680, 864, 366	333, 557, 501	16, 982, 406	0. 051
Light oil and derivatives:				
Crude light oil—do	[2] 200, 594, 027	11, 090, 709	1, 374, 527	. 124
Benzol, crude and refined—do	24, 944, 531	24, 558, 745	5, 169, 743	. 211
Motor benzol—do	105, 923, 762	100, 807, 852	16, 063, 285	. 159
Toluol, crude and refined—do	18, 343, 295	17, 064, 206	6, 580, 176	. 386
Solvent naphtha (including xylol)—do	7, 131, 111	6, 581, 047	1, 591, 333	. 242
Other light oil products—do	6, 675, 386	1, 877, 176	124, 948	. 067
	[3] 163, 018, 085	161, 979, 735	30, 904, 012	. 191

[1] Revised since last report.
[2] Refined on the premises to make the products shown: 1928, 182,998,384 gallons; 1929, 194,882,679 gallons.
[3] Total gallons of derived products.
[4] Sodium prussiate, carbolate, sulfur, smoke compound, textile covering, and tar paint.
[5] Includes products of tar distillation conducted by coke-oven operators under same corporate name, excepting, however, phenol and other tar acids produced at Clairton, Pa., which are covered by report of the U. S. Tariff Commission.

TABLE 6.—*Coal-tar crudes obtained as by-products in coke-oven operations*—Continued

[Bureau of Mines]

Product	Production	Sales		
		Quantity	Value	
			Total	Average
1929				
Naphthalene, crude and refined---pounds	19,761,382	19,659,367	$320,272	$0.016
Creosote oil (including distillate in coal-tar solution)---gallons	24,520,839	23,938,431	2,296,862	.096
Phenol (crude)---do	84,683	78,869	28,347	.359
Pitch of tar---net tons	88,158	5,599	27,273	4.871
Other products [4]			129,848	
1930 [5]				
Tar---gallons	602,485,929	314,865,294	15,562,963	0.054
Light oil and derivatives:				
Crude light oil---do	[6] 178,325,952	9,941,904	983,540	.099
Benzol, crude and refined---do	19,142,910	19,187,627	3,377,026	.176
Motor benzol---do	101,862,692	102,572,989	14,427,422	.141
Toluol, crude and refined---do	11,833,202	12,083,423	3,613,778	.299
Solvent naphtha---do	4,078,274	3,647,773	651,146	.179
Xylol---do	2,040,024	1,891,764	481,863	.255
Other light oil products---do	6,475,725	1,983,034	120,115	.061
	[3] 145,432,827	151,308,514	23,654,742	
Naphthalene, crude and refined---pounds	12,640,102	13,028,904	161,264	.012
Tar derivatives:				
Creosote oil (including distillate in coal-tar solution)---gallons	25,679,882	28,570,764	2,500,076	.088
Phenol (crude)---do	136,971	104,546	38,241	.366
Pitch of tar---net tons	106,334	7,465	46,914	6.285
Other tar derivatives [7]			55,376	
Other products [8]			95,164	

[3] Total gallons of derived products.
[4] Sodium prussiate, carbolate, sulfur, smoke compound, textile covering, and tar paint.
[5] Includes products of tar distillation conducted by coke-oven operators under same corporate name, excepting, however, phenol and other tar acids produced at Clairton, Pa., which are covered by report of the U. S. Tariff Commission.
[6] Refined on the premises to make the products shown: 173,328,254 gallons.
[7] Tar acids and liquid nail coating.
[8] Crude products, tar paint, carbolate, sodium prussiate, sulfur, smoke compound, textile covering, and cyanogen.

Production by firms not primarily engaged in the operation of coke ovens.—Table 7 shows the production of crudes in 1930 by firms not primarily engaged in the operation of coke ovens or gas houses.

TABLE 7.—*Coal-tar crudes: Production by firms not primarily engaged in the operation of coke-oven plants and gas houses*

[The numbers in the second column refer to the numbered alphabetical list of manufacturers given on p. 109. An X indicates that the corresponding product was made by a manufacturer who did not consent to the publication of his name in connection therewith. A blank in the third and fourth columns indicates that there was actual production of the corresponding article but that figures can not be published without revealing the output of individual firms]

Name	Manufacturers' identification numbers (according to list on p. 109)	1930		
		Quantity	Value	Unit value
Total crudes			$35,956,481	
Anthracene (crude, less than 30 per cent), pounds.	12, 130			
Anthracene oil---gallons	17, 83, 130, X			
Benzene (benzol)---do	17, 24, 123			
Carbolic oil or middle oil---do	79, 83, 95, X, X, X			

TABLE 7.—*Coal-tar crudes: Production by firms not primarily engaged in the operation of coke-oven plants and gas houses*—Continued

Name	Manufacturers' identification numbers (according to list on p. 109)	1930		
		Quantity	Value	Unit value
Cresol or cresylic acid (crude)—gallons	17, X			
Dead or creosote oil:				
Distillate as such—do	12, 15, 17, 24, 43, 77, 79, 95, 130, 141, 149, X, X, X, X, X, X, X, X.	96,891,940	$11,052,104	$0.11
Distillate in coal-tar solution [1]—do	17, 77, 83, X, X	29,772,663	3,274,993	.11
Light oil—do	43, 83, 95, 149, X, X, X, X, X, X.	8,892,108	750,375	.08
Motor fuel—do	17, 123			
Naphthalene (crude)—pounds	12, 16, 17, 95, 123, 130, 141, X, X, X.	18,616,792	304,574	.02
Other distillates—gallons	17, 24, 43, 149, 153, X, X, X, X, X.	4,663,052	638,142	.14
Pitch of tar—tons	12, 15, 17, 24, 43, 77, 83, 95, 130, 141, 149, X, X, X, X, X, X, X, X.	501,392	6,927,400	13.82
Pyridine—gallons	17			
Refined tars—barrels	12, 17, 24, 43, 95, 123, 130, 141, X, X, X, X, X, X, X.	2,565,292	11,293,996	4.40
Solvent naphtha—gallons	17, 130, X, X			
Toluene (toluol)—do	17, 123			
Xylene (xylol)—do	17			

The instructions sent to manufacturers were as follows: Include under dead or creosote oil only products which may be used for creosoting. Include under "other distillates" shingle stain oil, disinfectant oils, and flotation oils which do not contain over 5 per cent of phenol. Include under refined tars those tars which are used for road treatment, saturating felt, and for protective coatings. Phenol and all distillates which, on being subjected to distillation, yield in the portion distilling below 190° C. a quantity of tar acids equal to or more than 5 per cent of the original distillate, or which, on being subjected to distillation, yield in the portion distilling below 215° C. a quantity of tar acids equal to or more than 75 per cent of the original distillate are not to be included here but are to be placed under intermediates.

[1] Distillate used to produce coal-tar solution included in distillate as such.

Production of certain crudes from all sources.— The following discussion of the more important coal-tar crudes refers to total production, regardless of the agency collecting data.

(1) Creosote: The total production of coal-tar creosote in 1930 was 122,571,822 gallons, valued at $13,299,093, or 10.85 cents a gallon, as compared with 127,749,844 gallons, valued at $15,278,881, or 11.96 cents a gallon, in 1929, and 126,779,487 gallons, valued at $16,506,689, or 13.02 cents a gallon, in 1928. Of the total output, firms not primarily engaged in the operation of coke ovens or gas houses produced 96,891,940 gallons in 1930 as compared with 103,229,005 gallons in 1929 and 114,393,487 gallons in 1928. This production includes 23,009,508 gallons of distillate contained in 29,772,633 gallons of creosote coal-tar solution in 1930 and 25,945,752 gallons of distillate contained in 32,937,976 gallons of creosote coal-tar solution in 1929. Of the total output, firms reporting to the Bureau of Mines, principally coke oven operators, produced 25,679,882 gallons in 1930 as against 24,520,839 gallons in 1929 and 12,386,000 gallons in 1928.

These figures have been revised by the Tariff Commission and the Bureau of Mines on the basis of information obtained in the investigation of the cost of production of creosote oil.

The principal use of creosote oil is as a wood preservative. In 1929 there were 203 plants treating wood—10 more than in 1928. The total quantity of wood treated in 1929 was 362,009,047 cubic feet, as

compared with 335,920,379 cubic feet in 1928. The wood treated in 1929 consisted of the following products:

	Cubic feet
Crossties	213, 069, 309
Switch ties	14, 425, 642
Piles	17, 126, 794
Poles	77, 154, 317
Wood blocks	6, 852, 130
Cross arms	1, 957, 431
Construction timbers	20, 203, 811
Miscellaneous material (lumber, mine ties, shingles, fence posts, etc.)	11, 219, 613

For the above products treated in 1929 a total of 226,374,227 gallons of creosote oil were used, consisting of 57,914,236 gallons of distillate coal-tar creosote, 74,828,267 gallons of creosote coal-tar solution, 569,491 gallons of refined water-gas tar, 751,670 gallons of water-gas tar solution, and 92,310,563 gallons of imported creosote oil. Other wood preservatives used in 1929 were 29,656,181 gallons of petroleum, 19,848,813 pounds of zinc chloride, 1,188,148 pounds of miscellaneous salts, and 38,410 gallons of miscellaneous liquids.[3]

The Tariff Commission on March 4, 1931, instituted an investigation of creosote oil in response to Senate Resolution 470, which reads as follows:

Resolved, That the United States Tariff Commission is hereby directed to investigate, under section 332 of the tariff act of 1930, the difference in the costs of production and delivery to the principal market or markets of the United States during the calendar years 1928, 1929, and 1930 of dead or creosote oil provided for in paragraph 1651 of the tariff act of 1930, when produced in the principal competing country and a like or similar article produced in the United States, and to report thereon to the Senate as soon as practicable; and be it further

Resolved, That if this investigation discloses that the domestic cost of production exceeds the costs of production abroad in the principal competing country, the commission shall include in its report a statement as to the rate or rates of duty necessary to equalize said cost difference based on the American selling price as defined in section 402 (g) of the tariff act of 1930.

At the time of the preparation of this census, domestic costs of production were being obtained and arrangements for collecting foreign costs were being made.

2. Benzol: The output of benzol in 1930 was 19,918,059 gallons, valued at $3,544,929, as compared with 25,119,013 gallons, valued at $5,310,107, in 1929.

3. Motor benzol: The output of motor benzol in 1930 was 104,036,569 gallons, valued at $14,674,441, or 14 cents per gallon, as compared with 102,820,061 gallons, valued at $16,408,442, or 16 cents per gallon, in 1929.

4. Anthracene: To provide the necessary raw material for the increased output of anthraquinone dyes, there was a material increase in the output of crude anthracene in 1930.

5. Refined tars: The production of refined tars used largely in the manufacture of tar paper and roofing felts increased from 2,440,748 barrels in 1929 to 2,565,292 barrels in 1930. The unit value, however, declined from $4.73 in 1929 to $4.40 in 1930.

6. Pitch: The output of pitch, the residue from tar distillation, was 607,726 tons in 1930, as against 646,536 tons in 1929.

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[3] Data are taken from "Quantities of Wood Treated and Preservatives Used in the United States in 1929," Forest Service, U. S. Department of Agriculture.

Table 8 shows the domestic production of certain crudes from all sources, 1925–1930, inclusive.

TABLE 8.—*Total commercial production of benzene, toluene, solvent naphtha, naphthalene, and creosote oil from all sources in the United States*

[Data for coke ovens and gas works from reports to United States Geological Survey and Bureau of Mines; for tar refineries and others to United States Tariff Commission]

	By-product coke plants (sales) [1]	Gas works not elsewhere included (sales) [1 2]	Tar refineries and all other establishments [3] (production)	Total commercial production [4]
Benzene (all grades except motor benzol):				
Gallons—				
1925	21,816,386	(5)	741,576	22,607,962
1926	21,987,790	(5)	377,048	22,374,838
1927	21,193,807	(5)	370,782	21,579,589
1928	21,452,973	(5)	474,457	21,942,430
1929 [6]	24,558,745	(5)	546,268	25,119,013
1930 [7]	19,187,627	(5)	(8)	19,918,059
Value—				
1925	$4,888,240	(5)	$171,005	$5,070,245
1926	5,067,693	(5)	105,513	5,175,206
1927	4,371,519	(5)	100,453	4,474,972
1928	4,215,752	(5)	111,805	4,330,557
1929 [6]	5,169,743	(5)	137,364	5,310,107
1930 [7]	3,377,026	(5)	(8)	3,544,929
Motor benzol:				
Gallons—				
1925	80,957,983	(5)	(8)	84,789,206
1926	89,501,212	(5)	(8)	92,891,995
1927	86,802,745	(5)	(8)	90,160,367
1928	102,935,995	(5)	(8)	106,574,289
1929 [6]	100,807,852	(5)	(8)	102,820,061
1930 [7]	102,572,989	(5)	(8)	104,036,569
Value—				
1925	$13,441,422	(5)	(8)	$14,270,746
1926	16,863,109	(5)	(8)	17,578,255
1927	14,629,999	(5)	(8)	15,201,144
1928	16,832,646	(5)	(8)	17,388,166
1929 [6]	16,063,285	(5)	(8)	16,408,442
1930 [7]	14,427,422	(5)	(8)	14,674,441
Toluene, all grades:				
Gallons—				
1925	5,038,147	[9] 2,000	(10)	(10)
1926	8,650,605	[9] 200	(10)	(10)
1927	11,784,984	[9] 1,000	(10)	(10)
1928	16,181,650	[9] 1,000	(10)	(10)
1929 [6]	17,064,206	[9] 1,000	(10)	(10)
1930 [7]	12,083,423	[9] 1,000	(10)	(10)
Value—				
1925	$1,310,786	[9] 500	(10)	(10)
1926	2,914,752	[9] 170	(10)	(10)
1927	3,999,820	[9] 300	(10)	(10)
1928	5,513,624	[9] 300	(10)	(10)
1929 [6]	6,580,176	[9] 300	(10)	(10)
1930 [7]	3,613,778	[9] 300	(10)	(10)
Solvent naphtha, crude and refined, including xylene:				
Gallons—				
1925	3,993,735	(5)	530,833	4,609,568
1926	3,546,117	(5)	(8)	4,588,844
1927	3,661,970	(5)	(8)	4,536,967
1928	4,471,141	(5)	(8)	5,615,192
1929 [6]	6,581,047	(5)	(8)	7,886,802
1930 [7]	5,539,537	(5)	(8)	6,698,623
Value—				
1925	$805,251	(5)	148,801	$972,052
1926	1,035,870	(5)	(8)	1,174,297
1927	926,787	(5)	(8)	1,072,198
1928	1,047,095	(5)	(8)	1,201,882
1929 [6]	1,591,333	(5)	(8)	1,771,119
1930 [7]	1,133,009	(5)	(8)	1,288,150

See footnotes at end of table.

TABLE 8.—*Total commercial production of benzene, toluene, solvent naphtha, naphthalene, and creosote oil from all sources in the United States*—Con.

	By-product coke plants (sales)	Gas works not elsewhere included (sales)	Tar refineries and all other establishments (production)	Total commercial production
Naphthalene:				
Pounds—				
1925	9,900,517	1,266,037	34,135,175	45,301,726
1926	7,723,223	(5)	45,165,957	53,059,189
1927	7,848,224	(5)	45,298,441	53,176,660
1928	10,937,429	(5)	35,179,996	46,157,425
1929 [6]	19,659,367	(5)	19,501,679	39,201,046
1930 [7]	13,028,904	(5)	18,616,792	31,675,696
Value—				
1925	$97,493	$34,751	$519,773	$652,017
1926	97,310	(5)	494,986	594,296
1927	86,078	(5)	470,806	557,884
1928	135,693	(5)	395,059	531,752
1929 [6]	320,272	(5)	366,491	687,763
1930 [7]	161,264	(5)	304,574	466,838
Creosote oil, including distillate in coal-tar solution: [11]				
Gallons—				
1928	[12] 12,386,000	----------	114,393,487	126,779,487
1929 [6]	[12] 24,520,839	----------	103,229,005	127,749,844
1930 [7]	25,679,882	----------	96,891,940	122,571,822
Value—				
1928	(5)	----------	$14,893,689	$16,506,689
1929 [6]	$2,354,001	----------	12,924,880	15,278,881
1930 [7]	2,246,989	----------	11,052,104	13,299,093

[1] Sales instead of production are here given to avoid double counting between production of crude and pure grades and because such of the product as is used in the coke plant or gas works is not available for commercial use.

[2] In order to eliminate duplication, the figures for gas works are exclusive of by-product coke ovens operated by city gas companies, which are included in the preceding column, and exclusive of recoveries from such tar-refining operations conducted by the city gas companies as are included in the column headed "tar refineries." From time to time plants formerly included in the column headed "gas works" have been transferred to the column "tar refineries," hence the figures in the "gas works" column are not strictly comparable from year to year. The total commercial production shown in the last column contains no duplication and is comparable from year to year.

[3] See note 2.

[4] Totals include estimates for firms not reporting, and actual figures for items that can not be shown separately without disclosing individual returns.

[5] Reports incomplete. Estimate included in total.

[6] Final figures.

[7] Revised and final figures.

[8] Included in total, but can not be shown separately without disclosing individual returns.

[9] Estimate.

[10] A certain quantity of toluene was produced, but the figures can not be given without disclosing individual returns.

[11] Includes distillate as such and in coal-tar solution. Prior to 1928 all the creosote oil reported produced came from the "tar refineries," etc. Beginning with 1928 considerable quantities were recovered at by-product coke plants.

[12] Figures represent production.

EXPORTS AND IMPORTS

Available statistics of the exportation and importation of coal-tar crudes are published in Part VI, page 101, infra.

COAL-TAR INTERMEDIATES

PRODUCTION

Statistics of production and of sales of intermediates are given in Table 10, page 23, in as great detail as possible without disclosing the operations of individual manufacturers. The total production in 1930 was 290,760,532 pounds, as compared with 354,487,718 pounds in 1929 and 279,274,807 pounds in 1928—a decrease of 18 per cent from 1929 and an increase of 4 per cent over 1928. Certain items listed

under intermediates in 1929 are shown under medicinals and miscellaneous finished coal-tar products in 1930, accounting in part for the decrease. These items are benzoic acid, USP; resorcinol, USP; salicylic acid, USP; benzoate of soda, benzoyl peroxide, and the naphthol AS products. Their inclusion with intermediates, for a more favorable comparison with former years, brings production in 1930 to 296,023,691 pounds—a decrease of 16.5 per cent from 1929 and an increase of 6 per cent over 1928. Total sales in 1930 amounted to 124,349,333 pounds, valued at $22,574,061, or 18.1 cents per pound, as compared with 148,711,591 pounds, valued at $28,871,572, or 19.4 cents per pound in 1929. Including the items transferred to other classifications, the volume of sales in 1930 totaled 127,091,046 pounds, which is a decrease of 15 per cent from 1929, and the sales value amounted to $24,144,768—a decrease of 17 per cent.

Some intermediates, normally consumed in large quantities in dye production, showed decreases in 1930 from 1929, those used to produce direct, mordant and chrome and sulfur colors accounting for most of the reduction.

Aniline and derivatives.—The production of aniline declined from 33,743,270 pounds in 1929 to 26,388,177 pounds in 1930; the value of sales per pound dropped from 13 to 12 cents, and the production of aniline salts was reduced about 10 per cent.

Dimethylaniline was made in much smaller quantity in 1930 than in 1929, chiefly because of a reduced output of Auramine, Malachite green, Methyl violet, and Methylene blue; the appreciable increase in diethylaniline production was due partly to increased production of Brilliant green, Acid violet, and Patent blue A. The increase of 97 per cent in the production of dichloroaniline was the result of an increase in the production of certain specialty and unclassified dyes.

Other outstanding increases in 1930 in the production of aniline derivatives were: Dichloroaniline sulfonic acid, diethylaniline m-sulfonic acid, monoethylaniline, ethylbenzyl aniline, ethylbenzyl aniline sulfonic acid, and p-nitroaniline sulfonic acid. Aniline derivatives showing decreased production were nitrosodimethylaniline, aniline disulfonic acid, and thioaniline.

Benzene derivatives.—Decreases in production of certain benzene derivatives in 1930 were: Dinitrobenzene, 27 per cent; dinitrochlorobenzene, 31 per cent; nitrobenzene, 18 per cent; and aminoazobenzene. Derivatives showing increases included o-nitrochlorobenzene, used in increasing quantities in the production of o-nitroanisole for medicinals and the manufacture of dianisidine; nitrobenzene sulfonic acid, nitrobenzene-2:5-disulfonic acid, and pdichlorobenzene.

Benzidine, dianisidine, and tolidine.—The production of benzidine base decreased from 1,303,728 pounds in 1929 to 499,949 pounds in 1930, or about 62 per cent. The decreased production of mordant and chrome and direct dyes is partially responsible for this decline. Benzidine sulfate and hydrochloride also declined in production, while benzidine disulfonic acid and nitrobenzidine showed increased production.

During the same period, the production of dianisidine increased from 127,753 pounds to 136,467 pounds, or 7 per cent; and o-anisidine, about 30 per cent. The production of tolidine and salts in 1930 was

145,944 pounds, as compared with 129,311 pounds in 1929, or an increase of 13 per cent.

Naphthalene and derivatives.—The production of refined naphthalene was 31,955,635 pounds in 1930 as against 31,143,716 pounds in 1929, an increase of 3 per cent. Outstanding increases in production of naphthalene derivatives were 1-amino-8-naphthol-2:4 disulfonic acid (Chicago acid), 30 per cent; 2-amino-8-naphthol-6-sulfonic acid (gamma acid), 9 per cent; and phenyl-2-amino-8-naphthol-6-sulfonic acid (phenyl gamma acid) about 100 per cent; b-hydroxy naphthoic acid, more than 100 per cent, and a-naphthol nearly 100 per cent, both attributable to the increased production of the naphthol AS series of coupling components; phenyl-a-naphthylamine, phenyl-b-naphthylamine, isopropyl naphthalene sulfonic acid, 1-naphthylamine-6-sulfonic acid, 1-naphthylamine-3:8-disulfonic acid, 1 naphthylamine-4:6 and 4:7-disulfonic acid. Other naphthalene derivatives showing increased production in 1930 are b-naphthol, aminonaphthylamine trisulfonic acid (T acid) and 2-naphthol-6-sulfonic acid (Schaeffer's acid).

Some of the naphthalene derivatives showing decreased production are 1-amino-2-naphthol-4-sulfonic acid, 39 per cent, the falling off being due to decreased production of wool blacks; 1-amino-8-naphthol-3:6-disulfonic acid (H acid), 21 per cent, accounted for by the decreased production of azo dyes; 2-amino-5-naphthol-7-sulfonic acid (J acid), 18 per cent; chloronaphthalene, crotonylidine-a-naphthylamine, b-naphthalene sulfonic acid, 1-naphthol-4-sulfonic acid (Nevile and Winther's acid), 1-naphthol-5-sulfonic acid, a-naphthylamine, 1-naphthylamine-4-sulfonic acid (naphthionic acid), and 1-naphthylamine-3:6:8-trisulfonic acid.

Anthraquinone.—The production of anthraquinone (100 per cent) decreased about 30 per cent in volume and 10 per cent in unit sales value. The production of b-aminoanthraquinone decreased from 557,386 pounds in 1929 to 464,581 pounds in 1930, or 16.5 per cent; decreased production is also reported for 1:4-dihydroxyanthraquinone (quinizarin); anthraquinone-1:5-disulfonic acid, about 25 per cent; chlorobenzanthrone, 6 per cent; dibenzanthrone, 14 per cent; b-methylanthraquinone, 33 per cent; and for anthraquinone-2-sodium sulfonate (silver salt). Increases in production are shown for anthraquinone-1:5-dihydroxy (anthrarufin) about 30 per cent and b-chloroanthraquinone, 77 per cent. Production of 2-chloro-1:4-dihydroxy anthraquinone (chloroquinizarin) is reported in 1930 but not in 1929.

Condensation products.—The production of aldehyde-amine condensation products was 1,834,700 pounds in 1930, as against 3,375,095 pounds in 1929, or a decrease of 46 per cent. Increased production is reported for the condensation products of diphenylamine-acetone, polyethylenediamine-b-naphthol, and butylidine-aniline.

Phenol, cresylic acid, and resorcinol.—These are important raw materials for synthetic resins. The production of natural and synthetic phenol in 1930 was 21,147,436 pounds, as compared with 24,177,618 pounds in 1929—a decrease of 13 per cent. Sales in 1930 were 17,714,678 pounds, valued at $1,976,310, as against 19,938,503 pounds, valued at $2,248,288—a decrease of 11 per cent in volume of sales and 12 per cent in value. Synthetic phenol accounts for about 10 per cent less of the total phenol production in 1930 than in 1929.

Production of refined cresylic acid in 1930 was 17,305,308 pounds, as compared with 14,601,534 pounds in 1929—an increase of 19 per cent.

In 1930 production of resorcinol, technical, increased nearly 100 per cent over 1929, the increase being due to increased demand from synthetic resin and medicinal manufacturers. Unit value of sales decreased 16 per cent.

Benzoates and salicylates.—The production of benzoic acid, technical, in 1930 increased about 10 per cent over 1929, and increased production is reported for p-aminobenzoic acid, and p-nitrobenzoic acid. Benzoates produced in 1930, for which no production was reported in 1929, were benzoyl benzoic acid, chlorobenzoyl benzoic acid, hydroxy chlorobenzoyl benzoic acid, and p-nitrobenzoate (sodium salt).

The production in 1930 of salicylic acid, technical, was 2,909,259 pounds, a decrease from 1929. For the same period, the unit value of sales increased 15 per cent. Aminosalicylic acid and diazo salicylic acid also showed decreased production.

Phthalic anhydride and derivatives.—The production of phthalic anhydride decreased from 9,168,946 pounds in 1929 to 6,693,001 pounds in 1930, or 27 per cent. The volume of sales decreased from 7,450,037 pounds, valued at $1,147,953, in 1929 to 5,614,012 pounds, valued at $724,909, in 1930, or a decrease of 25 per cent in volume, 37 per cent in value, and 13 per cent in unit value of sales.

Dibutyl phthalate decreased in production from 4,749,776 pounds in 1929 to 1,960,351 pounds in 1930, or 59 per cent, while sales decreased from 4,251,171 pounds to 2,668,431 pounds, or 37 per cent. Diethylphthalate decreased in production about 50 per cent and volume of sales about 40 per cent. Maleic acid was made in increased quantity in 1930.

Diphenyl and derivatives.—The production of diphenyl increased about 55 per cent in quantity in 1930 over 1929, and the unit value of sales decreased 25 per cent. Diphenyl and diphenyl oxide are valuable heat transfer mediums which give promise of increased use. Improved production processes and at least one new manufacturer in 1931 should result in appreciably lower costs. Eutectic mixtures of diphenyl and diphenyloxide are said to be more suitable for heat transfer than either component alone. According to estimates of several large companies, the use of this system of heat transfer will show substantial savings in costs of installation and operation. Production of chlorinated diphenyls in 1930 increased 19 per cent.

Tricresyl and triphenyl phosphates.—Tricresyl phosphate production increased about 4 per cent, while triphenyl phosphate decreased nearly 47 per cent in 1930 from 1929. These products are used principally in the manufacture of pyroxylin plastics.

Organic metallic fungicides.—Comparable statistics of production for most of these organic metallic fungicidal compounds are not available. Appreciable decreases in production in 1930 as against 1929 are reported for hydroxymercurichlorophenol and hydroxychlorocresol.

New intermediates.—Among the intermediates for dyestuffs reported in 1930 but not in 1929 were the following:

Acetyl p-phenylenediamine sulfonic acid.
2-Amino naphthylamine-3:6-disulfonic acid.
Benzaldehyde disulfonic acid.
2-Chloro-1:4-dihydroxy anthraquinone.
Chlorophenylhydrazine sulfonic acid.
Chlorophenylmethylpyrazolone sulfonic acid.
o-Chloro-p-toluene sodium sulfonate.
o-Chlorotoluidine sulfonic acid.
Diaminoacridine base.
Dibenzoyldiamino-a-anthrimide.
Dibutyl naphthalene sulfonic acid.
Dichlorobenzidine.
Di-isopropyl naphthalene sulfonic acid.
Ethylacetanilide.
Hydroxychlorobenzoyl benzoic acid.
Leuco quinizarin.
o-Nitrochlorobenzene-p-sulfonic acid.
Primuline sulfonic acid.
Tolazine base.

The rubber chemicals reported in 1930 but not in 1929 were:

2:4-Diaminodiphenylamine.
b-Di-p-hydroxyphenylpropane.
Dimethyldithiocarbamic acid.
Dinitrophenylbenzothiazyl sulfide.
Diphenyldiamine dinaphthyl sulfide.
o-Di-tolylthiourea formaldehyde.
Phenyl ammonium naphtholate.

Intermediates for medicinals reported in 1930 but not in 1929 were:

Phenyl acetic acid and derivatives.
Phenyl malonic acid and derivatives.
Sodium p-nitrobenzoate.

STATISTICS OF PRODUCTION AND SALES

Table 9 gives the weighted average sales price of a list of domestic coal-tar intermediates for the period 1924–1930, together with invoice prices of imports of the same intermediates in 1914. The invoice is below cost to the consumer, as it does not include profit to the importer, duty, and certain other charges.

TABLE 9.—*Coal-tar intermediates: Domestic sales price per pound, 1924–1930,[1] and invoice price of same intermediates imported, 1914*

Intermediates	Invoice price, 1914	Domestic sales price						
		1924	1925	1926	1927	1928	1929	1930
Acetanilide, technical	[2] $0.15	$0.23	$0.22	------	$0.21	$0.23	------	------
1-Amino-8-naphthol-3:6-disulfonic acid (H acid)	[3].23	.65	------	------	.41	.42	$0.43	$0.40
2-Amino-8-naphthol-6-sulfonic acid (gamma acid)	----------	1.18	1.30	$1.02	.75	.77	.78	.74
p-Aminophenol and hydrochloride	[2].16	1.11	1.12	1.05	1.02	.97	.95	.89
Aniline oil	[2].08	.16	.16	.15	.14	.14	.13	.12
Anthraquinone	[2].19	.95	------	------	------	------	------	------
Benzidine base	[2].31–[3].55	.74	.72	.73	.65	.63	.64	.63
Chlorobenzene (mono)	[2].09	.06	.06	.06	.06	.05	.05	.05
Dianisidine	[2].40	3.34	------	2.19	2.17	1.88	1.59	1.48
p-Dichlorobenzene	[3].09	.16	.16	.16	.15	.15	.14	------
Diethylaniline	----------	.40	------	.49	------	------	------	------
Dimethylaniline	[3].15	.34	.30	.28	.26	.23	.21	------
Naphthalene, solidifying 79° or above (refined, flake)	[3].02	.05	.05	.05	.05	.05	.05	.05
b-Naphthol, technical	[2].07–[3].09	.22	.20	------	.19	.19	.19	------
1-Naphthol-4-sulfonic acid (Nevile & Winther's)	----------	1.00	------	------	.83	.70	.64	.64
1-Naphthylamine-4-sulphonic acid (naphthionic acid)	----------	.43	------	.40	.36	.34	.35	.33
p-Nitroaniline	[2].13–[3].14	.64	------	.45	.47	.47	------	------
Phenol	.06	.30	.21	.18	.15	.12	.11	11
p-Phenylenediamine	[2].31–[3].44	1.27	1.16	1.06	------	1.12	1.08	------
Phthalic acid and anhydride	[2].25	.24	.20	.18	.17	.16	.15	.13
Sulfanilic acid	[2].06–[3].16	.17	.16	.15	.14	.14	.14	.14
Thiocarbanilide	----------	.23	.23	.22	.21	.22	.22	.22
o-Toluidine	[2].09–[3].10	.13	.17	.23	.22	.25	.23	.23
m-Tolylenediamine	[2].19	.86	.81	.73	.69	.69	.67	.71
Xylidine and salt	[3].12	.39	------	.36	.35	.36	.34	.36

[1] Weighted average. For 1917 to 1923, see "Census of Dyes and Other Synthetic Organic Chemicals," 1924
[2] "Artificial Dyestuffs Used in the United States," Special Agents Series 121, Department of Commerce
[3] "Chemicals and Allied Products Used in the United States," Miscellaneous Series No. 82, Department of Commerce.

TABLE 10.—*Coal-tar intermediates, production and sales, 1930*

[The numbers in the second column refer to the numbered alphabetical list of manufacturers printed on page 109. An X signifies that the manufacturer did not consent to the publication of his identification number with the designated product. A blank in the third and fourth columns indicates that the sales figure can not be published without revealing information in regard to the output of individual firms. A blank in the sixth column indicates that the production of the corresponding product in the United States can not be published without revealing information in regard to the output of individual firms. The figures thus concealed are, however, included in the total]

Intermediates	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
		Pounds			*Pounds*
Total	----------	124, 349, 333	$22, 574, 061	$0.18	290, 760, 532
Acetaldehyde and aniline condensation products.	48, 127, X	1, 621, 914	901, 872	.56	1, 615, 381
Acetanilide, tech	7, 29, 48, 130	----------	----------	----------	----------
Acetoacetanilide	156, X	----------	----------	----------	----------
Acetyl - p - phenylenediamine (p-amino acetanilide).	7, 48, 63, 102, 121, 130	----------	----------	----------	135, 999
Acetyl - p - phenylenediamine sulfonic acid.	63	----------	----------	----------	----------
Acetyl-o-toluidine	102	----------	----------	----------	----------
Acetyl-p-toluidine	36, 48, 119, 130	----------	----------	----------	291, 630
Acridine yellow	102	----------	----------	----------	----------
p-Amino acetanilide. (*See* acetyl-p-phenylenediamine.)					
1-Amino-4-acetylamino-6 and 7-naphthylamine sulfonic acid (acetylamino Cleve's acid).	102	----------	----------	----------	----------
b-Amino anthraquinone	48, 63, 102, 105	----------	----------	----------	464, 581
Aminoazobenzene	7, 8, 29, 36, 102, 121	----------	----------	----------	----------
Aminoazobenzene sulfonic acid	8, 29, 36. 48, 63, 102, 105.				36, 727
Aminoazobenzene disulfonic acid	102	----------	----------	----------	----------

TABLE 10.—*Coal-tar intermediates, production and sales, 1930*—Continued

Intermediates	Manufacturers' identfication numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
		Pounds			*Pounds*
Amino azo compound (benzene, toluene and xylene).	48				
Aminoazotoluene	29, 48, 58, 102				121, 541
Aminoazoxylene and hydrochloride	8, 102				
o-Aminobenzoic acid (anthranilic acid).	46, 48				
p-Aminobenzoic acid	48, 129				
Aminobenzoyl J acid	48				
m-Aminocresol methyl ether	36				
p-Aminodiphenylamine	48				
Aminodiphenylamine sulfonic acid (nerol acid).	152				
1 - Amino - 2 - naphthol - 4 - sulfonic acid.	8, 36, 48, 63, 102, 117				616, 766
1 - Amino - 8 - naphthol - 4 - sulfonic acid.	36, 102, 105				
1 - Amino - 8 - naphthol - 2:4 - disulfonic acid (Chicago acid).	36, 48, 102, 105				168, 314
1 - Amino - 8 - naphthol - 3:6 - disulfonic acid (H acid).	48, 63, 102, 105, X				2, 337, 311
2 - Amino - 5 - naphthol - 7 - sulfonic acid (J acid).	7, 36, 48, 102, 105				236, 064
2 - Amino - 8 - naphthol - 6 - sulfonic acid (gamma acid).	7, 36, 48, 63, 102, 105				527, 212
2 - Amino - 8 - naphthol - 3:6 - disulfonic acid.	7, 102, 105				
2-Aminonaphthylamine-3:6-disulfonic acid.	105				
Aminonaphthylamine trisulfonic acid (T acid).	63				
o-Aminophenol	29, 48, 147, 152	9, 032	$18, 808	$2. 08	
p - Aminophenol and hydrochloride	29, 48, 52, 147, 155, 156.	155, 467	138, 453	. 89	331, 953
o-Aminophenol-p-sulfonic acid	102, 152				
o - Aminophenyl - p - tolylamine sulfonic acid.	36				
Aminosalicylic acid	8, 36, 48, 105				17, 195
Anhydroformaldehyde aniline (formanilide).	48, 126				
Anhydroformaldehyde - p- toluidine	48				
Aniline oil	29, 46, 48, 96, 101, 102, 105, X.	9, 647, 370	1, 184, 339	. 12	26, 388, 177
Aniline salts (hydrochloride and sulphate).	29, 48				
Aniline sulfonic acid	102				
Aniline disulfonic acid	7, 36, 48, 102				
o-Anisidine	36, 48, 101, 105				
o-Anisidine sulfonic acid	102				
Anthracene, refined	17, 128				
Anthranilic acid. (*See* o - aminobenzoic acid.)					
Anthraquinone (100 per cent)	20, 102, 105, X				
Anthraquinone salts					692, 414
Anthraquinone - 1:5 - dihydroxy (anthrarufin).	63, 102				
Anthraquinone - 1:5 - disulfonic acid.	63, 105				
Anthraquinone - 2:7 - disulfonic acid.	102				
Anthraquinone - 2 - sodium sulfonate (silver salt).	8, 48, 102, 105				
Antimol (modified benzoate)	129				
Aroclor. (*See* diphenyl, chlorinated.)					
Benzaldehyde, tech	60, 72				
Benzaldehyde disulfonic acid	63				
Benzanthrone	48, 63, 102, 105, X				202, 648
Benzidine, base	36, 48, 63, 102				499, 949
Benzidine disulfonic acid	29, 63, 121				
Benzidine sulfate and hydrochloride	48, 102				
Benzoic acid, tech	48, 72, 101				
Benzothiazyl disulfide	X				
Benzoyl benzoic acid	102				
Benzoyl chloride	46, 74				
Benzyl chloride	72, 74				
Benzyl mercaptan	102				

TABLE 10.—*Coal-tar intermediates, production and sales, 1930*—Continued

Intermediates	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
Broenner's acid. (*See* 2-naphthylamine-6-sulfonic acid.)		*Pounds*			*Pounds*
Butylaldehyde and aniline condensation products:	X				
Butylidine and aniline condensation products (polybutylidine aniline).	66				
Calcium malate	102				
Chicago acid. (*See* 1-amino-8-naphthol-2:4-disulfonic acid).					
p-Chloroaniline sulfonic acid	36				
Chloroanthraquinone	63, 102, X				
o-Chlorobenzaldehyde	102				
Chlorobenzanthrone	48, 102				
Chlorobenzene (mono)	46, 48, 74, 101, 133	2, 902, 421	$153, 656	$0. 05	
Chlorobenzoyl benzoic acid	40, 102				
2-Chloro-1:4-dihydroxy anthraquinone (Chloroquinizarin).	102				
1 Chloro-2:6-dinitro-4-sulfonic acid	152				
Chlorometanilic acid	48, 102				
6-Chloro-4-methoxy-3-hydroxy thionaphthalene.	48				
Chloromethylanthraquinone	102				
Chloronaphthalene	X				
o-Chloro-p-nitroaniline	13, 29				
p-Chloro-o-nitrophenol	152				
o-Chlorophenol	127				
p-Chlorophenol	127				
Chlorophenylhydrazine sulfonic acid	63				
Chlorophenylmethylpyrazolone sulfonic acid.	63				
Chlorosulfophenylmethyl pyrazolone	48				
o-Chlorotoluene	102				
o-Chlorotoluene-p-sulfonic acid	48				
o-Chloro-p-toluene sodium sulfonate	8				
o-Chlorotoluidine sulfonic acid	8				
2-Chloro-5-toluidine-4-sulfonic acid	29, 48, 130, 152				192, 317
Chlorotolylthioglycollic acid	48				
Chromotropic acid. (*See* 1:8-dihydroxynaphthalene-3:6-disulfonic acid).					
Cleve's acid. (*See* 1-naphthylamine-6 and 7-sulfonic acid).					
Cresidine	48				
Cresylic acid, refined (distillates yielding below 215° C. tar acids equal to more than 75 per cent of the original distillate).	12, 17, 92, 95, X, X	16, 026, 407	1, 267, 155	.08	17, 305, 308
Crotilidine aniline	X				
Crotonylidine-a-naphthylamine	66				
Cumidine	8, 18, 102, X				
Dehydrothio-p-toluidine base	105				
Dehydrothio-p-toluidine sulfonic acid	36, 102, 105				
Dehydrothio-p-toluidine sulfonic acid and primuline.	X				
Dehydrothio-m-xylidine	105				
Diaminoacridine base	102				
Diaminodimethyldihydroacridine	121				
2:4-Diaminodiphenylamine	127				
Diaminostilbene disulfonic acid	48, 102, 105				149, 869
Dianisidine	36, 48, 102, 105				136, 467
1-Diazo-2-naphthol-4-sulfonic acid	36, 48, 102, 117				
Diazosalicylic acid	63, 102				
Dibenzanthrone	105				
1:5-Dibenzoyldiamino anthraquinone.	48				
Dibenzoyldiamino-a-anthrimide	48				
Dibenzoyldiaminodianthraquinonyl imide.	48				
Dibenzylamine	X				
Dibenzylaniline	48				
Dibutyl naphthalene sulfonic acid	63				
Dibutyl phthalate	84, 143, 146, X	2, 668, 431	650, 436	.24	1, 960, 351
Dichloroaniline	36, 63, 105, 147, 152				165, 244
Dichloroaniline sulfonic acid	121				
o-Dichlorobenzene	46, 101				
p-Dichlorobenzene	46, 74, 101, 133	5, 507, 030	791, 094	.14	5, 947, 617

TABLE 10.—*Coal-tar intermediates, production and sales, 1930*—Continued

Intermediates	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
		Pounds			*Pounds*
Dichlorobenzidine	36				
Dichlorosulfophenylpyrazolone	36				
Dichlorosulfophenylmethylpyrazolone.	121				
Diethylamine	155				
Diethyl-m-aminophenol	48, 93				
Diethylaniline	46, 48, 102				
Diethylaniline-m-sulfonic acid	48				
1:4-Dihydroxy anthraquinone (quinizarin).	7, 8, 102, 156				53, 641
5:5-Dihydroxy-7:7-disulfonic-2:2-dinaphthylamine (Rhoduline acid).	48				
5:5-Dihydroxy-7:7-disulfonic-2:2-dinaphthylurea (J acid urea).	36, 48, 102, 105				83, 054
5:5-Dihydroxy-di-b-naphthylamine-7:7-disulfonic acid (I acid imide).	102				
1:8-Dihydroxynaphthalene-3:6-disulfonic acid (chromotropic acid).	48, 102				
b-Di-p-hydroxyphenylpropane	X				
Di-isopropyl naphthalene sulfonic acid.	63				
Dimethylamine	48, 155				
p-Dimethylamino butylidine aniline	66				
Dimethylaniline	29, 46, 48, 102				
2:2-Dimethyl-1:1-dianthraquinonyl	48, 102				
Dimethyldithiocarbamic acid (benzal ester).	X				
Dimethylphenylbenzylammonium disulfonic acid, calcium salt (leukotrope W).	X				
Dimethyl-p-phenylenediamine	66				
Dimethyltetraaminodiphenylmethane.	121				
b-b-Dinaphthylamine	X				
2:4-Dinitroaniline	8, 29				
Dinitrobenzene	29, 48, 102	227, 465	$29, 678	$0. 13	1, 338, 580
Dinitrobenzene sulfonic acid	36, 63				
Dinitrochlorobenzene	48, 63, 102	525, 475	66, 604	. 13	5, 074, 504
Dinitrohydroxydiphenylamine	36, 63				
Dinitrophenol and sodium salt	8, 48, 63, 85	26, 520	7, 689	. 29	
Dinitrophenylbenzothiazyl sulfide	127				
Dinitrophenyl ester of dimethyldithiocarbamic acid.	X				
Dinitrostilbene	29				
Dinitrostilbene disulfonic acid	48, 102				
Dinitrotoluene	29, 48, 102				
Dinitrotoluene sulfonic acid	36				
Diphenyl	139				
Diphenyl, chlorinated (aroclor)	139				
Diphenylamine	48				
Diphenylamine and acetone condensation product.	X				
Diphenyldiamine dinaphthyl sulfide	127				
s-Di-(b-naphthyl)-p-phenylenediamine.	66				
Diphenylethylenediamine	X				
Diphenylguanidine	46, 48, 127, X	1, 499, 297	409, 750	. 27	1, 634, 837
Diphenylmethane sulfonic acid	102				
Distilbenediphenol	102				
o-Ditolylethylenediamine	X				
Ditolylmethane	102				
Ditolylguanidine	48, X				
Ditolylthiourea	48, 66, 102, 127				
o-Di-tolylthiourea formaldehyde	127				
6-Ethoxy-3-hydroxy thionaphthalene	48				
Ethylacetanilide	48, 102				
Ethyl-p-aminoacetanilide	102				
Ethyl-p-aminobenzoate	100				
Ethyl-o-amino-p-cresol	48				
Ethylaniline (mono)	48, 102				
Ethylbenzene	32				
Ethylbenzylaniline	48, 102				
Ethylbenzylaniline sulfonic acid	36, 48, 102				
Ethyl carbazole	48				
Ethyl-o-toluidine	48				
Ethyl-o-toluidine-p-sulfonic acid	48				

TABLE 10.—*Coal-tar intermediates, production and sales, 1930*—Continued

Intermediates	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
		Pounds			*Pounds*
Ethylidine aniline and derivatives	126				
Fluroescein	8, 29, 102				
Formanilide. (*See* anhydroformaldehyde aniline.)					
Gamma acid. (*See* 2-amino-8-naphthol-6-sulfonic acid.)					
H acid. (*See* 1-amino-8-naphthol-3:6-disulfonic acid.)					
Heptaldehyde and aniline condensation products.	X				
Hydroxychlorobenzoyl benzoic acid	102				
Hydroxychlorocresol	48				
Hydroxymercurichlorophenol	48				
b-Hydroxy naphthoic acid	48, 63				
I acid imide. (*See* 5:5-dihydroxy-di-b-naphthylamine-7:7-disulfonic acid.)					
Indamine	7				
Indigo disulfonic acid	8				
Indophenols (blue and green)	7				
Iso violanthrone	48				
Isopropyl naphthalene sulfonic acid	102				
J acid. (*See* 2-amino-5-naphthol-7-sulfonic acid.)					
J acid urea. (*See* 5:5-dihydroxy-7:7-disulfonic-2:2-dinaphthylurea.)					
Laurent's acid. (*See* 1-naphthylamine-5-sulfonic acid.)					
Lead dithiobenzoate	X				
Leucanol	102				
Leuco quinizarin	8				
Maleic acid	102				
Maleic anhydride	102				
dl-Malic acid	102				
Mercapto-benzo-thiazole	48, 127, X				
Metanilic acid	7, 8, 29, 36, 48, 102, 105.				472,441
Methylamine	7				
Methyl aniline	48				
b-Methylanthraquinone	X				
Methylhydroxynitrobenzoate	100				
Methylphenylpyrazolone and hydrochloride.	40, 63				
Methyl pyridine	X				
2-Methyl quinoline (quinaldine)	102				
Methylene dianilide	48				
Methylene di-b-naphthol	X				
Michler's hydrol. (*See* tetramethyldiaminobenzhydrol.)					
Michler's ketone. (*See* tetramethyldiaminobenzophenone.)					
Naphthalene, solidifying 79° C. or above (refined, flake).	17, 29, 95, 105, 153, X.	20,171,158	$948,774	$0.05	31,955,635
b-Naphthalene sulfonic acid	130				
1:5-Naphthalene disulfonic acid	48				
2:7-Naphthalene disulfonic acid	48, 102, 130				
Naphthalidoanthraquinone-2-carboxylic acid.	48				
Naphthionic acid. (*See* 1-naphthylamine-4-sulfonic acid.)					
Naphtho-1:8-sultam-2:4-disulfonic (sultam acid).	48				
a-Naphthol	29, 36, 48, 63, 102, 105, X.	390,281	172,277	.44	801,800
b Naphthol, tech	29, 102, 130				
1-Naphthol-4-sulfonic acid (Nevile & Winther's acid).	7, 36, 48, 102, 105	12,171	7,751	.64	92,800
1-Naphthol-5-sulfonic acid	7, 36, 48, 63, 102, 105.				76,994
1-Naphthol-8-chloro-3:6-disulfonic acid (chloro H acid).	102				
1-Naphthol-8-sulfonic-3-sultone	36				
1-Naphthol-3:8-disulfonic acid	105				
1-Naphthol-3:6:8-trisulfonic acid	29, 105				
2-Naphthol-1-sulfonic acid	48				
2-Naphthol-6-sulfonic acid (Schaeffer's acid).	7, 36, 48, 63, 102				168,989

TABLE 10.—*Coal-tar intermediates, production and sales, 1930*—Continued

Intermediates	Manufacturers' identfication numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
		Pounds			*Pounds*
2-Naphthol-7-sulfonic acid	36, 130				
2-Naphthol-8-sulfonic acid	36				
2-Naphthol-3:6-disulfonic acid	7, 36, 48, 63, 102, 130.	172,824	$75,295	$0.44	527,076
2-Naphthol-6:8-disulfonic acid	7, 36, 48, 63, 102, 105, 130.				639,997
a-Naphthylamine	63, 102, 105				
b-Naphthylamine	36, 48, 102, 130				
1-Naphthylamine-4-amino-6 and 7-sulfonic acid.	105				
1-Naphthylamine-4-sulfonic acid (naphthionic acid).	7, 36, 102, 105, X				853,232
1-Naphthylamine-5-sulfonic acid (Laurent's acid).	7, 48, 63, 102, 105				120,259
1-Naphthylamine-6-sulfonic acid	36, 48, 102				
1-Naphthylamine-6 and 7-sulfonic acid (Cleve's acid).	7, 36, 48, 102, 105				152,529
1-Naphthylamine-7-sulfonic acid	36				
1-Naphthylamine-8-sulfonic acid	7, 48, 63, 102, 105				295,382
1-Naphthylamine-3:8-disulfonic acid	48, 105				
1-Naphthylamine-4:6 and 4:7-disulfonic acid.	105				
1-Naphthylamine-4:8-disulfonic acid	36, 48, 102, 105				325,862
1-Naphthylamine-3:6:8-trisulfonic acid.	48, 102, 105				
2-Naphthylamine-1-sulfonic acid	36, 48, 102, 130				545,318
2-Naphthylamine-6-sulfonic acid (Broenner's acid).	36, 48, 102				30,381
2-Naphthylamine disulfonic acids (1:5 and 1:7).	36				
2-Naphthylamine-4:8 disulfonic acid	36, 48, 102, 105				62,818
2-Naphthylamine-5:7-disulfonic acid	36, 48, 102, 105				450,228
2-Naphthylamine-6:8-disulfonic acid	7, 36, 48, 102, 105				742,644
Nerol acid. (*See* aminodiphenylamine sulfonic acid.)					
Nevile & Winther's acid. (*See* 1-naphthol-4-sulfonic acid.)					
p-Nitroacetanilide	7, 36				
Nitroaminodiphenyl sulfide	102				
Nitroaminophenol	29, 63, 102, 152				20,217
p-Nitro-o-aminophenol	8				
m-Nitroaniline	29, 48, 147				
p-Nitroaniline	29, 101				
p-Nitroaniline sulfonic acid	7, 29, 36, 48, 63, 152				48,712
p-Nitro-o-anisidine	48				
o-Nitroanisole	36, 48, 101, 105				657,271
m-Nitrobenzaldehyde	7, 102				
Nitrobenzene	29, 48, 101, 102, 105, X.	2,338,398	197,021	.08	39,210,718
Nitrobenzene sulfonic acid	29, 63				
Nitrobenzene-m-sulfonic acid	48				
Nitrobenzene-2:5-disulfonic acid	36				
Nitrobenzidine	105				
p-Nitrobenzoate (sodium salt)	129				
p-Nitrobenzoic acid	1, 48, 129				
m-Nitrobenzoyl chloride	121				
p-Nitrobenzoyl chloride	48, 121				
o-Nitrochlorobenzene	48, 101				
p-Nitrochlorobenzene	29, 48, 101				
o-Nitrochlorobenzene sulfonic acid	8				
o-Nitrochlorobenzene-p-sulfonic acid	102				
p-Nitrochlorobenzene-o-sulfonic acid	29, 36, 48, 63, 105, 152.				139,644
Nitrocresol	48				
m-Nitro-p-cresol	36				
Nitrocresol methyl ether	48				
8-Nitro-1-diazo-2-naphthol-4-sulfonic acid.	63, 102				
Nitro-p-dichlorobenzene	36, 63, 147				184,223
3-Nitro-4-hydroxyphenyl arsonic acid.	160				
Nitronaphthalene	63, 102, 105				
2-Nitronaphthalene-4:8-disulfonic acid.	36				
o-Nitrophenol	48, 147, 152				
p-Nitrophenol	48, 101, 147				
Nitrosodimethylaniline	29, 85, 102				51,655

TABLE 10.—*Coal-tar intermediates, production and sales, 1930*—Continued

Intermediates	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
		Pounds			*Pounds*
Nitrosophenol	7, 20, 36, 48, 52, 63, 102.				
Nitrotoluene	29, 48, 102, 105				5, 552, 462
o-Nitrotoluene	48, 102, 105				
o-Nitrotoluene sulfonic acid	8, 29, 36				
m-Nitrotoluene	106				
p-Nitrotoluene	48, 102, 105				1, 420, 261
p-Nitrotoluene sulfonic acid	29				
p-Nitrotoluene-o-sulfonic acid	48, 102, 105				471, 910
m-Nitro-p-toluidine	29, 36, 48, 119, 130	347, 954	$495, 597	$1.42	299, 378
p-Nitro-o-toluidine	48				
Nitroxylene	48, 102, 105				289, 702
Omega acid. (*See* sulfanilide.)					
Oxalylarsanilic acid	100				
Oxalyl-p-nitroaniline	48, 102				
Oxalyl-m-phenylenediamine	48, 102				
Oxalyl-p-phenylenediamine	48, 102				
Phenazine	7				
Phenol	12, 17, 46, 95, 101, 127, X, X.	17, 714, 678	1, 976, 310	0.11	21, 147, 436
Phenyl acetic acid and derivatives	19				
Phenyl - 2 - amino - 5 - naphthol - 7 - sulfonic acid (phenyl J acid).	7, 36, 48, 102, 105				21, 660
Phenyl - 2 - amino - 8 - naphthol - 6 - sulfonic acid (phenyl gamma acid).	7, 48, 105, 121				19, 481
Phenylammonium naphtholate	29				
Phenyldimethylaminopyrazolone	100				
m-Phenylenediamine	7, 8, 29, 36, 48, 63, 102, 105, 117.				670, 521
m-Phenylenediamine sulfonic acid	36, 48, 63, 102				31, 075
p-Phenylenediamine	29, 147				
p-Phenylenediamine sulfonic acid	29, 36				
Phenylglycine, sodium salt	46, 48, 102				
Phenylhydrazine and hydrochloride	29, 46, 48, 63, 121				55, 172
Phenylhydrazine-p-sulfonic acid	48, 63, 121, 136				15, 875
o-Phenylhydrazine sulfonic acid	63				
Phenyl malonic acid and derivatives	19				
Phenylmethylpyrazolone	46, 121				
Phenylmethylpyrazolone-p-sulfonic acid.	63				
Phenyl-a-naphthylamine	48				
Phenyl-b-naphthylamine	48, 66				
Phenyl-l-naphthylamine-8-sulfonic acid.	7, 48, 63, 102, 105				202, 000
Phenyl-b-naphthylnitrosamine	X				
Phenylphenol (ortho and para)	46				
Phthalic anhydride and acid	48, 101, 102, 128	5, 614, 012	724, 909	.13	6, 693, 001
Picramic acid	29, 48, 102				39, 051
Poly ethylenediamine and b-naphthol condensation products.	X				
Primuline, base	36, 102, 105				93, 974
Primuline sulfonic acid	29				
Pyrazolone G	8				
Quinaldine. (*See* 2-methyl quinoline.)					
Quinphthalone (quinoline yellow base).	102				
Resorcinol, tech	119				
Rhoduline acid. (*See* 5:5-dihydroxy-7:7-disulfonic-2:2-dinaphthylamine.)					
Salicylic acid, tech	46, 48, 72, 101				2, 909, 259
Silver salt. (*See* anthraquinone-2-sodium sulfonate.)					
Sulfanilic acid	29, 36, 92, 102				1, 180, 758
Schaeffer's acid. (*See* 2-naphthol-6-sulfonic acid.)					
Sulfanilide (omega acid)	29				
o-Sulfobenzoic acid	75				
Sulfophenylmethylpyrazolone	121				
Sultam acid. (*See* naphtho-1:8-sultam-2:4-disulfonic acid.)					
Sulfur red J	7				
T acid. (*See* aminonaphthylamine trisulfonic acid.)					
Tetraaminoditolylmethane	48, 121				

TABLE 10.—*Coal-tar intermediates, production and sales, 1930*—Continued

Intermediates	Manufacturers' identfication numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
		Pounds			*Pounds*
Tetrachlorofluorescein	29				
Tetrachlorophthalic anhydride	102				
Tetramethyldiaminobenzhydrol (Michler's hydrol).	48				
Tetramethyldiaminobenzophenone (Michler's ketone).	48, 63				
Tetramethyldiaminodihydroacridine	121				
Tetramethyldiaminodinitroacridine	121				
Tetramethyldiaminodiphenylmethane.	29, 48, 93, 102				688, 057
Tetramethyldiaminophenylacridine	121				
Tetramethyldiaminophenyldihydroacridine.	121				
Tetramethyltetraaminotriphenylmethane.	121				
Thioaniline	7				
Thiocarbanilide	48, 66, 102, 127	188, 557	$40, 775	$0. 22	658, 461
Tolazine base	103				
Tolidine and salts	36, 48, 102, 105				145, 944
Tolidine sulfonic acid	29				
Tolidine disulfonic acid	121				
o-Toluene sulfamide	101				
p-Toluene sulfamide	101				
p-Toluene sulfochloride	101				
p-Toluene sulfonic acid ethyl ester	147				
p-Toluene sulfonyl ethyl ester	102				
Toluidine	29, 36, 48				
o-Toluidine	29, 48, 102, 105	463, 203	106, 011	. 23	1, 260, 980
o-Toluidine sulfonic acid	29, 48, 102				
m-Toluidine	48, 105				
m-Toluidine sulfonic acid	48				
p-Toluidine	48, 102, 105				710, 374
p-Toluidine sulfonic acid	8, 36, 48, 152				36, 578
m-Tolylenediamine	7, 29, 36, 48, 63, 102, 105.	221, 860	156, 788	. 71	561, 130
m-Tolylenediamine sulfonic acid	36, 102				
Tolyl-1-naphthylamine-8-sulfonic acid (tolyl-peri acid).	7, 48, 63, 102, 105				22, 729
Tricresylphosphate	81, X				
Trinitrophenol	48, 102				
Triphenylguanidine	48, 102				
Triphenylphosphate	22, 46, 81, 127				
Xylidine and salt	29, 48, 102, 105				183, 575
Xylidine base	102				
Xylidine, ortho and para	29, 105				
p-Xylidine hydrochloride	102				
m-Xylidine	48, 105				
m-Xylidine-5-sulfonic acid	48, 102				
m-Xylidine-6-sulfonic acid	102				
Zalba (antioxidant)	48				

ORGANIC CHEMICALS FOR MOTHPROOFING

Certain well-known intermediates of coal-tar origin and many other organic chemicals of coal-tar and noncoal-tar origin, are proposed for use in combating insects that attack wool, mohair, silk, furs, feathers, and other animal fibers. Growing realization of the economic importance of the problem of control of fabric pests has greatly increased the number of products for this purpose. The average yearly loss caused by clothes moths, carpet beetles, and furniture beetles, in the United States alone, is estimated conservatively at $100,000,000.

The most effective mothproofing chemicals are stomach poisons which kill larvæ when ingested; many of the so-called clothes-moth repellents, such as naphthalene and p-dichlorobenzene, are ineffective

as repellents for larvæ, although vapors from these products will kill insects in a gas-tight space.

For effective mothproofing, chemicals should be:

1. Repellent to moths.
2. Nontoxic to human beings.
3. Inodorous.
4. Invisible.
5. Uniform in adherence to fiber—as a dyestuff.
6. Noninjurious to fiber.
7. Soluble in ordinary solvents and in water.
8. Reasonable in price.

The following list shows some of the organic products closely allied to the dye industry, and which are mentioned in the United States, British, French, and German patents as having good mothproofing properties.

Acetaldehyde and p-chlorophenol condensation products.
Trichloroethyl acetanilide.
Phenyl acetic acid.
Benzoic acid, hydroxy and methylhydroxy derivatives.
Salicylic acid, chloro and methyl derivatives.
Aniline fluosulfonate, ortho, meta, and para isomers.
Anthracene, sulfonic and carboxylic derivatives.
Benzacetyl al-phenylhydrazone.
Benzaldehyde, sulfonic acid derivatives.
Benzaldehyde and p-chlorophenol condensation products.
Monochlorobenzene.
Dichlorobenzene, ortho, meta, and para isomers.
Hexachloronaphthalene.
Dinitrobenzene.
Trichlorobenzene.
Tetrachlorobenzene.
Benzene sulfonic acid, nitro and chloro derivatives.
Benzidine.
Benzilic acid (diphenylglycolic acid)
Diphenyl, sulfonic and carboxylic acid derivatives.
Carbazole, acetyl and chloro derivatives.
Hexachloroethane.
Chlorocresotinic acid anilide sulfonic acid.
Trichloronaphthalene.
Copper salts of the halogen substituted phenols and cresols.
Cyclohexanone.
Acetyl diphenylamine.
Quinoidine.
Formaldehyde and p-chlorophenol condensation products.
Hexamethylenetetramine.
Diphenylmethane, sulfonic, chloro, and carboxylic acid derivatives.
Nitroacetphenetidine.
Phenol, chloro, bromo, and sulfonic acid derivatives.
Metaphenylenediamine and the phenyl sulfonyl derivatives.
Paraphenylenediamine and the phenyl sulfonyl derivatives.
Phthalic anhydride derivatives.
Urea, phenyl and thio derivatives.
Naphthalene derivatives.

Many other compounds, both organic and inorganic, have been found to be effective moth repellents. A more complete list, together with the source of information, is given in "An Index of Patented Mothproofing Materials," by R. C. Roark, of the Division of Insecticides, Bureau of Chemistry and Soils, United States Department of Agriculture.

TABLE 11.—*Intermediates: Production, by groups, according to unit value*

Group	1926		1927		1928		1929		1930	
	Pounds	Per cent of total	Pounds	Per cent of total	Pounds	Per cent of total	Pounds	Per cent of total	Pounds	Per cent of total
0–15 cts.	135,324,911	58.93	150,641,892	62.75	172,187,886	61.66	229,029,120	64.61	199,355,488	68.56
16–25 cts.	47,228,385	20.57	34,353,105	14.31	39,099,559	14.00	14,865,731	12.66	40,560,763	13.95
26–50 cts.	24,130,013	10.51	29,973,693	12.49	40,702,440	14.56	50,835,573	14.34	27,406,659	9.42
51–75 cts.	10,571,635	4.60	14,498,391	6.04	18,419,660	6.60	19,910,895	5.62	14,604,284	5.02
$0.76–$1.	7,097,246	3.09	4,797,843	2.00	3,049,726	1.09	3,279,172	.93	3,388,601	1.17
$1.01–$1.50	2,621,011	1.14	2,604,940	1.08	2,591,619	.93	4,057,157	1.14	2,907,383	1.00
$1.51–$2.	1,434,404	.62	2,022,746	.84	1,252,592	.45	1,286,595	.36	892,945	.31
$2.01–$3.	916,665	.40	763,153	.31	1,079,646	.39	850,330	.24	1,114,310	.38
$3.01–$4.	144,587	.06	281,366	.12	699,843	.25	145,953	.04	369,355	.13
Over $4.	184,945	.08	136,055	.06	191,836	.07	227,192	.06	160,744	.06
Total	229,653,802	100.00	240,073,184	100.00	279,274,807	100.00	354,487,718	100.00	290,760,532	100.00

DYES AND OTHER FINISHED COAL-TAR PRODUCTS

INTRODUCTION

Finished coal-tar products may be divided into the following classes: (1) Dyes, (2) color lakes, (3) photographic chemicals, (4) medicinals, (5) flavors, (6) perfume materials, (7) synthetic resins, (8) synthetic tanning materials, and (9) miscellaneous materials. Although products other than dyes are manufactured in relatively smaller quantities, they constitute a vital part of the coal-tar chemical industry and are closely allied to dye production.

SUMMARY OF PRODUCTION OF DYES

The output of dyes in 1930 by 50 firms was 86,480,000 pounds, a decrease of 22 per cent from the 111,421,505 pounds produced in 1929. Sales in 1930 were 89,971,599 pounds, valued at $38,621,610 as against 106,070,887 pounds, valued at $45,842,130, in 1929. The decrease in production and sales was less in 1930 than in the depression years 1921 and 1924, as compared with their respective preceding years.

Outstanding features of dye production in 1930 were: (1) An increase of 24 per cent in the sales of special and unclassified dyes; (2) a decrease of 15 per cent in the sales of dyes of all classes, of 12 per cent in acid dyes, 16 per cent in basic dyes, 30 per cent in mordant and chrome dyes, 24 per cent in sulfur dyes, 4 per cent in lake and spirit-soluble dyes, 8 per cent in direct dyes, 18 per cent in Indigo, and only 1 per cent in vat dyes other than Indigo; (3) a decrease of 17 per cent in exports; (4) a decrease of 36 per cent in imports; and (5) a smaller decrease in the output of foreign-owned plants in the United States than in the total United States production.

Table 12 shows the production and sales of dyes in the United States in recent years as compared with the pre-war year 1914.

TABLE 12.—*Coal-tar dyes: Production and sales*

Year	Production	Sales		Year	Production	Sales	
		Quantity	Value			Quantity	Value
	Pounds	*Pounds*			*Pounds*	*Pounds*	
1914	6,619,729		[1] $2,470,096	1925	86,345,438	79,303,451	$37,468,332
1920	88,263,776		[1] 95,613,749	1926	87,978,624	86,255,836	36,312,648
1921	39,008,690	47,513,762	39,283,956	1927	95,167,905	98,339,204	38,532,795
1922	64,632,187	69,107,105	41,463,790	1928	96,625,451	93,302,708	39,792,039
1923	93,667,524	86,567,446	47,223,161	1929	111,421,505	106,070,887	45,842,130
1924	68,679,000	64,961,433	35,012,400	1930	86,480,000	89,971,599	38,621,610

[1] Value of production.

Stocks on Hand

Commencing with 1924, the commission has published annually data as to the quantity of certain dyes on hand at the beginning of the year. Table 13 shows stocks on hand January 1, 1930, and January 1, 1931, for a selected list of dyes.

TABLE 13.—*Domestic coal-tar dyes: Stocks on hand*

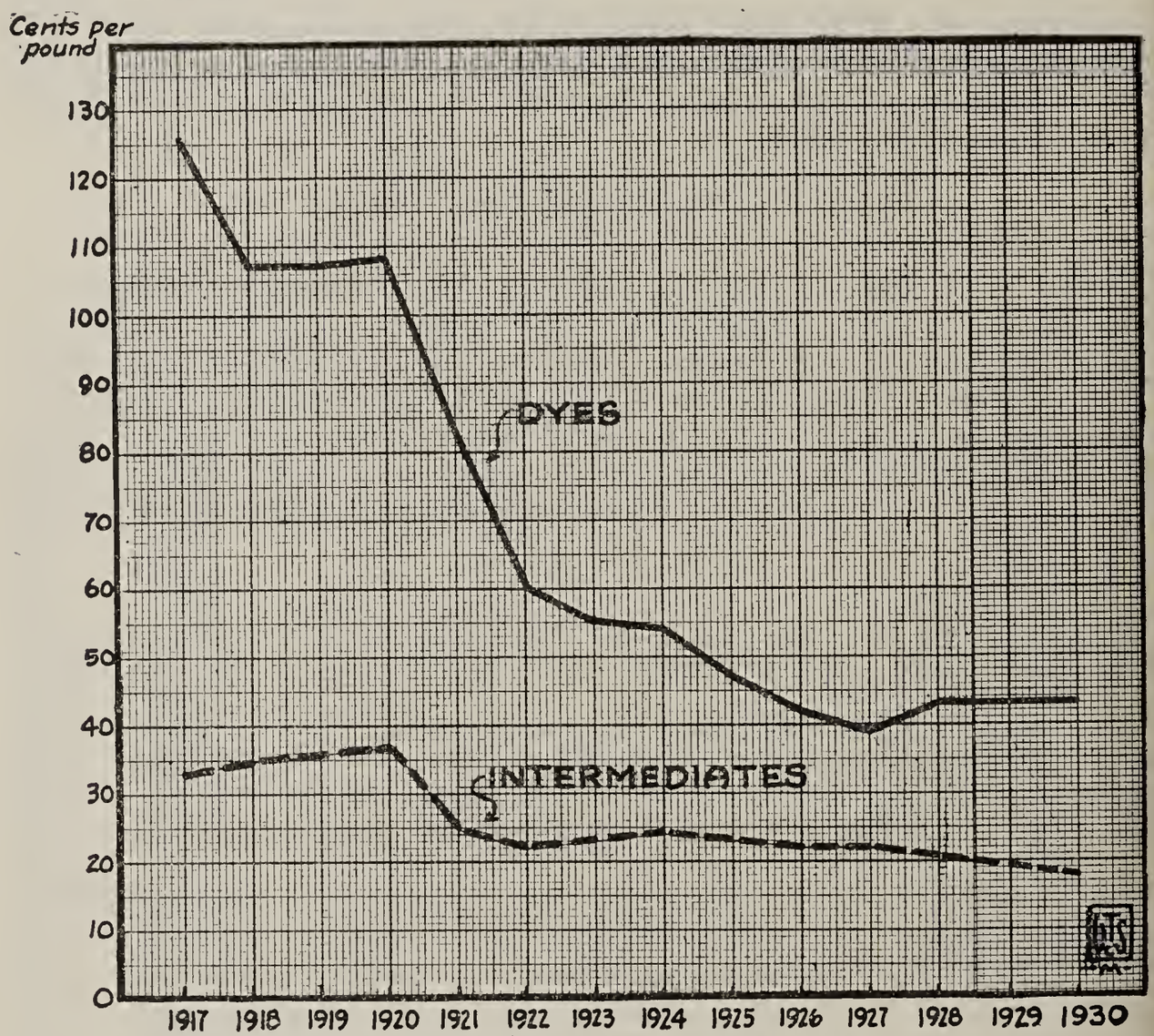
Colour Index No.	Name of dye	January 1—	
		1930	1931
		Pounds	*Pounds*
20	Chrysoidine Y	228,317	171,882
31	Amido naphthol red G	86,726	82,284
79	Ponceau 2 R	186,874	212,906
138	Metanil yellow	185,891	204,651
151	Orange II	400,091	137,401
179	Azo rubine	90,730	78,305
189	Lake red R	125,876	116,402
202	Chrome blue black U	346,274	221,186
208	Fast acid blue R	71,665	70,074
234	Resorcin brown B	129,278	108,829
246	Acid black 10 B	430,655	417,598
289	Fast cyanine 5R	318,799	168,004
326	Direct fast scarlet	189,734	168,616
332	Bismarck brown 2R	205,976	143,802
365	Chrysophenine G	332,446	342,839
401	Developed black BHN	353,696	374,883
406	Direct blue 2B	773,954	458,020
448	Benzopurpurine 4B	205,439	184,428
518	Direct pure blue 6B	218,682	231,781
520	Direct pure blue	173,351	94,988
581	Direct black EW	2,357,510	1,923,516
582	Direct black RX	456,244	233,874
593	Direct green B	183,179	170,509
596	Direct brown 3GO	310,775	228,398
620	Direct yellow R	185,540	147,442
655	Auramine	348,730	321,183
680	Methyl violet	261,126	258,075
812	Primuline	209,807	244,297
814	Direct fast yellow	87,892	79,596
864	Nigrosine (spirit-soluble)	138,100	191,546
865	Nigrosine (water-soluble)	444,975	464,841
	Sulfur black	6,313,446	4,796,903
	Sulfur blue	491,606	337,600
	Sulfur brown	613,892	679,555
	Sulfur yellow	271,742	232,521
1177	Indigo, 20 per cent paste	10,448,023	10,541,406
	Anthraquinone vat dyes	2,414,735	2,448,564
	Developed blacks	92,632	143,495
	Total	31,427,683	27,867,893

Prices

Domestic dyes declined steadily in price from 1917 to 1927. In 1928, largely because of an increase of 1 cent per pound in sulfur black and increased production of the higher priced dyes, the weighted average selling price of all dyes increased. Although since 1928 the weighted average selling price has been practically stationary at 43 cents per pound, there was a general decrease in 1930 in the unit values of most of the dyes. A slight increase in the price of bulk colors produced in large quantities, and the production of relatively larger quantities of the higher-priced dyes have offset the general price decline.

Price data for dyes and intermediates for the period 1917–1930 are shown in the following graph:

WEIGHTED AVERAGE PRICES, DYES AND INTERMEDIATES, 1917-1930.



Note: The prices indicated prior to 1921 represent the sales value of production.

Table 14 shows the sales price of about 75 domestic dyes from 1928 to 1930, inclusive, with the invoice price of the same types of dyes imported in 1914. The dyes for which statistics are here given constitute about 75 per cent of domestic production. Strictly speaking, domestic sales prices can not, of course, be compared with invoice prices, for the reason that the latter do not represent the cost to the consumer, as they do not include the importer's profit and the usual charges for containers, packing, freight, insurance to seaport, consular certification, duty, and minor shipping charges at point of departure and at seaport.

In Table 14 the Colour Index number appears in the first column, and the type name of the dye adopted by the Tariff Commission for designating all dyes reported under a given Colour Index number, in the second column. The invoice price (1914) shown in column 3 represents the weighted average of all dyes classified under a given number in Artificial Dyestuffs Used in the United States, published by the Department of Commerce, as Special Agents Series No. 121. The figures in column 4, the domestic sales price as reported to the Tariff Commission, represent the weighted average selling price of all dyes reported under a given Colour Index number.

TABLE 14.—*Domestic sales price of certain dyes, 1928–1930, compared with invoice value of dyes of the same kind imported in 1914*

Colour Index No.	Name of dye	1914 invoice value imported dyes (weighted average of all types)	Average price per pound		
			1928	1929	1930
20	Chrysoidine Y	$0.136	$0.31	$0.31	$0.30
31	Amidonaphthol red G	.150	.40	.34	.33
36	Chrome yellow 2G	.077	.49	.47	.44
40	Chrome yellow R	.154	.54	.57	.58
57	Amidonaphthol red 6B	.604	.49	.48	.47
79	Ponceau 2R	.095	.42	.43	.50
88	Bordeaux B	.159	.51	.49	.48
138	Metanil yellow	.164	.56	.54	.53
146	Azo yellow	.249	.73	.70	.68
151	Orange II	.081	.26	.26	.24
176	Fast red A	.118	.59	.57	.56
179	Azo rubine	.198	.63	.61	.60
180	Fast red VR	.188	.54	.59	.45
184	Amaranth	.138	.54	.64	.66
189	Lake red R	.083	.79	.80	.83
202	Chrome blue black U	.156	.36	.30	.22
208	Fast acid blue R	.252	.56	.52	.53
246	Acid black 10B	.134	.37	.40	.38
252	Brilliant croceine	.165	.81	.76	.65
262	Cloth red 2B	.143	.80	.69	.73
289	Fast cyanine 5R	.166	.67	.53	.50
299	Chrome black F	.172	.64	.61	.59
307	Fast cyanine black B	.110	.72	.66	.63
308	Naphthalamine black D	.144	.70	.76	
331	Bismarck brown	.186	.39	.39	.39
332	Bismarck brown 2R	.183	.40	.38	.39
365	Chrysophenine G	.270	.50	.49	.47
394	Direct violet N	.255	.99	.96	.90
401	Developed black BHN	.133	.39	.35	.32
406	Direct blue 2B	.041	.25	.26	.24
410	Chrysamine G	.189	.72	.61	
415	Direct orange R	.231	.56	.67	.55
419	Direct fast red F	.362	.72	.66	.66
420	Direct brown M	.194	.61	.58	.60
448	Benzopurpurine 4B	.133	.48	.46	.44
477	Direct blue 3B	.209	.39	.39	.39
495	Benzopurpurine 10B	.234	.94	1.07	.84
512	Direct blue RW	.222	.77	.73	.72
518	Direct pure blue 6B	.275	.62	.59	.62
520	Direct pure blue	.440	.54	.52	.49
581	Direct black EW	.144	.28	.28	.27
582	Direct black RX	.139	.32	.30	.29
593	Direct green B	.174	.38	.37	.40
594	Direct green G	.230	.50		
596	Direct brown 3GO		.36	.35	.36
598	Congo brown G	.194	.61	.68	
620	Direct yellow R	.178	.35	.35	.36
621	Chloramine orange G	.239	.77	.74	.78
640	Tartrazine	.200	.58		
655	Auramine	.240	.81	.78	.84
657	Malachite green	.241	1.20	1.24	1.17
666	Acid green B	.255	.99	.88	1.03
677	Magenta	.294	1.82	1.87	1.80
690	Methyl violet	.248	.84	.76	.72
698	Acid violet	.281	1.08	.98	.92
704	Alkali blue	.409	2.26		1.00

TABLE 14.—*Domestic sales price of certain dyes, 1928–1930, compared with invoice value of dyes of the same kind imported in 1914*—Continued

Colour Index No.	Name of dye	1914 invoice value imported dyes (weighted average of all types)	Average price per pound		
			1928	1929	1930
737	Wool green S	$0.353	$0.75	$0.73	$0.89
768	Eosine	.418	----------	1.77	1.64
793	Phosphine	.352	1.12	1.07	1.25
812	Primuline	.144	.43	.39	.40
814	Direct fast yellow	.136	.93	.91	.92
864	Nigrosine (spirit-soluble)	.126	.43	.37	.33
865	Nigrosine (water-soluble)	.149	.35	.34	.32
883	Gallocyanine	.347	1.81	1.56	----------
922	Methylene blue	.390	.93	.84	----------
	Sulfur black	.100	.14	.14	.12
	Sulfur blue	----------	.51	.51	.48
	Sulfur brown	.107	.32	.31	.29
	Sulfur tan	----------	.31	.28	.31
	Sulfur maroon	.186	.52	.45	.48
	Sulfur yellow	----------	.41	.39	.37
1113	Anthraquinone vat blue GCD	.350	.78	.69	.61
1177	Indigo, synthetic	.128	.14	.15	.14

Unit Value of Dyes Produced, 1926–1930

Table 15 shows the domestic production of dyes from 1926 to 1930, inclusive, arranged according to eight value groups. The actual quantity is given for each group and the relation of each group to the total production.

TABLE 15.—*Coal-tar dyes: Production, by groups, according to unit value*

Group	1926		1927		1928		1929		1930	
	Pounds	Per cent of total	Pounds	Per cent of total	Pounds	Per cent of total	Pounds	Per cent of total	Pounds	Per cent of total
1–25 cents	43,747,262	49.72	49,314,987	51.82	43,321,274	44.84	49,919,561	44.80	40,771,465	47.15
26–50 cents	20,666,640	23.48	23,450,835	24.64	26,624,686	27.55	30,251,786	27.15	21,854,206	25.27
51–75 cents	8,794,368	10.00	7,470,547	7.85	9,432,458	9.76	10,121,960	9.09	7,026,303	8.12
$0.76–$1	8,045,922	9.15	7,570,480	7.96	9,550,635	9.88	10,072,975	9.04	8,299,971	9.60
$1.01–$1.50	2,808,457	3.19	3,714,761	3.90	3,536,731	3.66	5,683,807	5.10	4,855,601	5.62
$1.51–$2	2,241,741	2.55	2,375,625	2.50	2,707,054	2.80	3,799,793	3.41	2,942,983	3.40
$2.01–$3	1,402,063	1.59	1,086,666	1.14	1,298,824	1.35	1,366,792	1.23	587,930	.68
Over $3	272,170	.31	184,004	.19	153,789	.16	204,831	.18	141,541	.16
Total	87,978,624	100.00	95,167,905	100.00	96,625,451	100.00	111,421,505	100.00	86,480,000	100.00

Progress in Dye Manufacture

Although trade in dyes was less in 1930 than in 1929, progress was made by the coal-tar chemical industry. Increased research developed a number of new dyes, many of which were produced for the first time in the United States. Imports decreased much more than did exports.

Relation of production to consumption.—Assuming consumption to equal total sales plus imports minus exports, the apparent consumption of coal-tar dyes in 1930 was 65,819,141 pounds. Of this quantity

93.8 per cent was supplied by domestic production; the remaining 6.2 [4] per cent was supplied by imports.

The ratio of imports to consumption, in terms of value, depends on the method used in evaluating imported dyes. When the foreign invoice value is used the ratio is 9.8 per cent. This comparison is hardly valid because foreign value is used for imported dyes whereas realization price is used for domestic dyes. Taking the duty-paid value of imports, $6,207,034 (the foreign invoice value, $3,500,154 plus the duty paid, $2,706,880), plus the value of domestic sales, less the value of exports, the apparent domestic consumption by value is $38,582,814, of which imports (duty-paid value) supplied 16.1 per cent. If 15 per cent allowance is made for profit and expenses on the duty-paid value of the imported dyes, imports supplied over 18 per cent of domestic consumption.

Court and Treasury Decisions

In the Census of Dyes of 1924 (pp. 41–45), the American selling price as applied to coal-tar products is discussed, the principal features of the administration of these provisions by the Treasury Department are reviewed, the major regulations issued by that department are summarized, and important Treasury decisions up to G. A. 9004, T. D. 40926, of 1925 are given. In subsequent issues of the Census important decisions up to April 1, 1930 are abstracted. Decisions up to May 15, 1931, follow.

Customs regulations, including dye standards, adopted for the act of 1922 were extended as far as applicable to the act of 1930. T. D. 44090. Additional standards of strength were prescribed in T. D. 44231.

Erioglaucine A. P. was held dutiable as coal-tar color under paragraph 28 of the tariff act of 1922. Ab. 14225.

Adipic acid produced from coal tar and also from other sources, but the source of which can not be determined by chemical analysis, was held by the Treasury Department to be dutiable as a coal-tar product, paragraph 27 of the tariff act of 1930. T. D. 44237.

Articles containing a mixture or solution which in turn contains one ingredient of coal tar mentioned in paragraph 28 are dutiable under that paragraph. Ab. 13901.

Where dyes "A" and "B" are offered for sale in the United States, and the same dyes mixed together to form a new dye are imported, the ad valorem can not be derived from the American selling price of a comparable American article by taking the price at which dyes "A" and "B" are offered for sale in America and calculating from them in in the proportions by weight of the imported mixture what price a mixture accomplishing the same results as the imported mixture would be sold for when no such comparable mixture has been offered for sale, or sold, in the United States market. T. D. 43775. On appeal from this decision the principle herein announced

[4] Imports of coal-tar dyes in 1930 were 4,114,882 pounds with a foreign invoice value of $3,500,154. This poundage is in excess of the net quantity imported. It is, however, comparable with both domestic production and domestic sales as nearly all the vat dyes as well as the rhodamines have been reduced to a single-strength basis in order to facilitate comparison. The Department of Commerce reports the total dye imports (excluding natural Indigo, natural alizarin, and color lakes) as 4,939,975 pounds, valued at $5,246,847. The quantity as compiled in Foreign Commerce and Navigation of the United States, represents the number of pounds on which specific duty of 7 cents (3½ cents in case of Indigo and sulfur black since the tariff act of 1930) was assessed. The value represents the dutiable value.

was affirmed by the Court of Customs and Patent Appeals, but the decision was reversed because of the exclusion by the Customs Court of evidence bearing on the question of the existence of a similar domestic product produced by a formula other than that under which the imported product was produced. T. D. 44343.

Where merchandise is sold to certain dealers at special prices contingent on purchase in quantities larger than the usual wholesale quantities, such prices do not constitute the American selling price. T. D. 43973.

In determining the American selling price of a comparable domestic article under paragraphs 27 and 28 of the tariff act of 1922, manufacturer's price to jobbers, and not jobber's price to consumers, must be used as the base. T. D. 44084.

Where goods were entered for warehouse under the act of 1913 and withdrawn under the act of 1922, which provided for a mode of valuation different from that in force under the act of 1913, the goods were not dutiable on the basis of their entered value where such value exceeded the appraised value. Ab. 13651. Rehearing granted. Ab. 14527.

Royalty fees for subsequent use of the goods in the United States, collected under a process patent by the seller of the goods as agent for the owner of the patent and included in the purchase price, are part of the United States value. T. D. 44729.

Royalty fees on product patent, which presumably covers manufacture and sale of the product in the United States, are a part of the United States value. T. D. 44730.

Containers of coal-tar dyes and colors of American manufacture, which are exported and later returned to the United States without having been advanced in value or improved by any process of manufacture or other means while abroad, whether or not imported by or for the account of the person who exported them from the United States, are not required to be marked in the manner specified in paragraph 28 of the tariff act of 1930. T. D. 44370–7.

Imports of Dyes, 1926–1931

Table 16 summarizes the quantity and invoice value of dye imports from 1926 up to and including June, 1931.

TABLE 16.—*Coal-tar dyes: Imports into the United States*

Period	Quantity	Invoice value	Monthly average	
			Quantity	Value
	Pounds		*Pounds*	
1926	4,673,196	$4,103,301	389,433	$341,941
1927	4,233,046	3,413,886	352,754	284,490
1928	5,351,951	4,321,867	445,996	360,156
1929	6,437,147	5,374,085	536,429	447,840
1930	4,114,882	3,500,154	342,907	291,680
1931 (6 months)	2,429,615	2,113,623	404,936	352,271

TABLE 17.—*Coal-tar dyes: Production and sales, by chemical classification, with index number of production and sales, using the year 1928 as a base*

Chemical classification	Production			Comparison of production			Sales			Comparison of sales			Unit value of sales		
	1928	1929	1930	1928	1929	1930	1928	1929	1930	1928	1929	1930	1928	1929	1930
	Pounds	*Pounds*	*Pounds*	*Index numbers*	*Index numbers*	*Index numbers*	*Pounds*	*Pounds*	*Pounds*	*Index numbers*	*Index numbers*	*Index numbers*			
Monoazo	9,476,904	10,913,219	7,209,622	100	115	76	9,035,966	10,370,889	7,789,490	100	115	86	$0.488	$0.497	$0.487
Disazo	11,965,958	12,619,397	10,109,814	100	105	84	11,157,663	12,006,206	10,881,936	100	108	98	.549	.553	.514
Trisazo	9,641,816	9,885,017	8,183,730	100	103	85	8,621,048	9,574,101	9,013,133	100	111	105	.334	.329	.316
Other azos	2,725,466	3,678,205	3,237,013	100	135	119	2,519,365	3,297,754	2,937,736	100	131	117	.923	.916	1.008
Total azo	33,810,144	37,095,838	28,740,179	100	110	85	31,334,042	35,248,950	30,622,295	100	112	98	.502	.510	.496
Stilbene	631,115	771,655	498,261	100	122	79	631,339	714,821	526,419	100	113	83	.560	.524	.559
Pyrazolone	856,832	959,616	747,812	100	112	87	861,664	888,968	729,313	100	103	85	.802	.850	.819
Ketonimine	920,821	1,224,158	801,535	100	133	87	872,588	1,083,878	829,082	100	124	95	.814	.783	.842
Triphenylmethane and diphenyl naphthylmethane	2,268,017	2,502,923	2,518,282	100	110	111	2,102,575	2,370,333	2,480,741	100	113	118	1.312	1.176	1.076
Xanthene	822,096	731,489	833,013	100	89	101	724,571	761,056	699,885	100	105	97	1.214	1.081	1.040
Azine	2,650,277	3,041,003	2,483,507	100	115	94	2,576,995	2,833,143	2,447,362	100	110	95	.495	.476	.428
Sulfide	19,001,910	22,605,799	14,232,076	100	119	75	19,969,173	21,214,680	16,062,771	100	106	80	.206	.194	.170
Anthraquinone	936,252	1,005,289	1,053,194	100	107	112	812,487	1,001,354	1,011,371	100	123	124	1.804	1.691	1.386
Anthraquinone vat	3,587,766	4,917,296	4,197,338	100	137	117	3,119,852	4,189,501	4,031,946	100	134	129	1.368	1.357	1.294
Total anthraquinone	4,524,018	5,922,585	5,250,532	100	131	116	3,932,339	5,190,855	5,043,317	100	132	128	1.458	1.421	1.312
Food	171,943	356,059	304,912	100	207	177	204,828	324,497	302,586	100	158	148	3.189	2.799	2.550
All other classes [1]	26,444,260	30,287,795	24,819,359	100	115	94	26,160,255	30,248,851	25,184,511	100	116	96	.264	.283	.289
Total	96,625,451	111,421,505	86,480,000	100	115	90	93,302,708	106,070,887	89,971,599	100	114	96	.426	.432	.429

[1] Includes the following classes: Acridine, quinoline, thiazole, indophenol, aniline black, oxazine, thiazine, and indigoids, and the bacteriological stains.

Production and Sales of Dyes by Chemical Classes

Table 17, page 39, shows the trend of production, sales, and unit value of sales for the more important chemical classes of dyes made in 1928, 1929, and 1930. Production of each class for each of the three years is shown, followed by a percentage comparison of production for 1929 and 1930 as against 1928 taken as 100 per cent, 1928 being considered a normal business year. Volume of sales is given for each of the three years followed by a comparison of sales with 1928. Unit value of sales is shown for each of the three years from which the trend may easily be determined. As production and sales of the individual members of each class vary from year to year, this method of comparison is of value only for the group and not for individual dyes. An exception is the ketonimine dyes. Again many dyes listed in "other azo" and "all other" may have been identified for the succeeding year and so classified.

The increased production of triphenylmethane and diphenylnaphthylmethane dyes is due principally to larger output of Alkali blue and Acid violet, and the increase in xanthene dyes to greater production of Eosine and Rhodamine B.

Decreased production in 1930 of monoazo dyes was due to reduced output of Chrysoidine Y, Amido naphthol red G, Chrome yellow 2G, Amido naphthol red 6B, Ponceau 2R, Metanil yellow, Orange II, Lake red C, Fast red VR, Cochineal red, Chrome blue black U, Fast acid blue R, Azo rubine, etc.

The decrease in production of disazo dyes was due to lessened output of the following: Resorcin brown B, Brilliant croceine, Cloth red 2B, Fast cyanine 5R, Fast cyanine black B, Direct fast scarlet, Bismarck brown and Bismarck brown 2R, Congo corinth G, Direct blue 2B, Direct brown M, Benzopurpurine 4B, Direct blue RW, Direct pure blue 6B, etc. Smaller output of trisazo dyes is accounted for by decreases in: Direct fast black FF, Direct brown BT, Direct black EW, Direct black RX, Direct green ET, Direct brown 3GO, etc. In 1930 the unclassified azo dyes included a number containing dibutyl and isopropyl radicals, the attempt being made to improve the properties of the dyes so that they would compare more favorably with the vat dyes.

Production of all sulfur colors, with the exception of Sulfur orange, decreased. Direct yellow R and Stilbene yellow were responsible for the decreased output of stilbene dyes.

An outstanding feature of increased production for 1930 is in bacteriological stains and indicators, the output of which has nearly doubled each year since 1928. Sales although relatively small in volume, increased 90 per cent in quantity as against 1929, and value per pound of sales decreased from $3.30 to $2.25, or 32 per cent.

Production of Dyes by Classes of Application

Dyes produced in the United States in 1930, classified according to method of application, were: (1) Acid dyes, (2) basic dyes, (3) direct dyes, (4) mordant and chrome dyes, (5) sulfur dyes, (6) vat dyes, subdivided into Indigo and other vats, and (7) color-lake and spirit-soluble dyes. Although the classification of a dye in any one of these groups must in certain instances necessarily be arbitrary, because a dye may have properties which permit of its application by more than

one method, such classification facilitates a comparison of production and import figures. Overlapping the acid dyes are the food dyes, discussed on page 45.

Comparative data for dyes produced in the United States from 1928 to 1930, inclusive, and those imported in the same years are given according to classes in Table 18.

TABLE 18.—*Comparison of imports of dyes with production and sales, by class of application*

Classes of application	Production					
	Quantity			Per cent of total		
	1928	1929	1930	1928	1929	1930
	Pounds	*Pounds*	*Pounds*			
Acid	13,469,597	14,196,815	11,457,235	13.94	12.74	13.25
Basic	5,374,099	5,899,970	4,649,898	5.56	5.30	5.38
Direct	19,633,095	21,622,907	17,553,462	20.31	19.41	20.28
Lake and spirit-soluble	1,821,492	2,724,712	2,560,936	1.89	2.44	2.96
Mordant and chrome	4,403,934	4,846,228	3,137,164	4.56	4.35	3.63
Sulfur	19,001,910	22,605,799	14,232,076	19.67	20.29	16.46
Vats (including Indigo)	32,375,812	38,784,337	32,304,300	33.51	34.81	37.36
(*a*) Indigo	25,861,680	29,320,270	24,326,403	26.77	26.31	28.13
(*b*) Other vats	6,514,132	9,464,067	7,977,897	6.74	8.50	9.22
Unclassified and special	545,512	740,737	584,929	.56	.66	.68
Total	96,625,451	111,421,505	86,480,000	100.00	100.00	100.00

Classes of application	Sales					
	Quantity			Value		
	1928	1929	1930	1928	1929	1930
	Pounds	*Pounds*	*Pounds*			
Acid	12,632,917	13,510,356	11,846,500	$8,861,206	$9,381,432	$8,160,004
Basic	5,085,165	5,565,651	4,671,667	4,218,213	4,485,160	3,766,639
Direct	18,073,537	20,486,890	18,691,522	8,947,838	10,170,774	8,748,427
Lake and spirit-soluble	1,797,665	2,606,685	2,503,754	1,495,331	2,190,511	2,438,986
Mordant and chrome	3,958,973	4,656,901	3,270,504	2,399,961	2,597,742	1,469,439
Sulfur	19,969,173	21,214,680	16,062,771	4,107,743	4,113,233	2,734,656
Vats (including Indigo)	31,310,768	37,501,167	32,271,157	9,156,995	12,223,010	10,445,411
(*a*) Indigo	25,556,849	29,382,120	24,233,020	3,585,700	4,384,189	3,319,502
(*b*) Other vats	5,753,919	8,119,047	8,038,137	5,571,295	7,838,821	7,125,909
Unclassified and special	474,510	528,557	653,724	604,712	680,268	858,048
Total	93,302,708	106,070,887	89,971,599	39,792,039	45,842,130	38,621,610

Classes of application	Imports					
	Quantity			Per cent of total		
	1928	1929	1930	1928	1929	1930
	Pounds	*Pounds*	*Pounds*			
Acid	994,201	1,491,313	904,859	18.58	23.17	21.99
Basic	424,968	367,568	215,197	7.94	5.71	5.23
Direct	917,728	977,792	810,545	17.15	15.19	19.69
Lake and spirit-soluble	98,550	204,248	155,051	1.84	3.17	3.77
Mordant and chrome	476,872	545,508	249,982	8.91	8.47	6.08
Sulfur	125,350	142,919	56,643	2.34	2.22	1.38
Vats (including Indigo)	2,304,104	2,694,901	1,715,960	43.05	41.87	41.70
(*a*) Indigo	2,343	----------	----------	.04	----------	----------
(*b*) Other vats	2,301,761	2,694,901	1,715,960	43.01	41.87	41.70
Unclassified and special	10,178	12,898	6,645	.19	.20	.16
Total	5,351,951	6,437,147	4,114,882	100.00	100.00	100.00

(1) Acid Dyes

Description.—The acid dyes, usually the sodium salts of a color acid, are commonly applied in an acid bath. They are principally applied to wool and silk. Most of the acid dyes are chemically included in one of the following groups: (1) Nitro compounds, (2) azo compounds, (3) sulfonated basic dyes, and (4) alizarin derivatives.

Production and sales.—Acid dyes constituted 13.25 per cent of the total production of dyes in 1930 as compared with 12.74 per cent in 1929. The production of 11,457,235 pounds in 1930 as against 14,196,815 pounds in 1929 is a decrease of 19 per cent. Sales in 1930 were 11,846,500 pounds, valued at $8,160,004, as compared with 13,510,356 pounds, valued at $9,381,432, in 1929. The weighted average sales price in 1930 was 68.88 cents a pound, as compared with 69.44 cents in 1929, and 70.14 cents in 1928.

The five leading acid dyes in production are Acid black 10B, Nigrosine (water-soluble), Orange II, Metanil yellow, and Fast cyanine 5R. The combined output of these five dyes was 40 per cent of the total production of acid dyes.

(2) Basic Dyes

Description.—The basic dyes surpass all others in depth, brilliancy of shade, and purity of tone. They possess high tinctorial power, but as a class lack fastness, especially to light and washing. They the fixed on vegetable fibers with an acid mordant, such as tannic acid. Chemically, basic dyes include a large number of the triphenylmethane derivatives, and in addition, members of the following classes: (1) Azines, (2) azos, (3) thiazines, (4) thiazoles, and (5) acridines.

Production and sales.—Basic dyes constituted 5.38 per cent of the total production of dyes in 1930 as compared with 5.30 per cent in 1929. The production of 4,649,898 pounds in 1930 as against 5,899,970 pounds in 1929 is a decrease of 21 per cent. Sales in 1930 were 4,671,667 pounds, valued at $3,766,639, as compared with 5,565,651 pounds, valued at $4,485,160, in 1929. The weighted average sales price in 1930 was 80.63 cents a pound as compared with 80.59 cents in 1929, and 82.95 cents in 1928.

In production, the three leading dyes of this group are Auramine, Methyl violet, and Chrysoidine Y. They constituted 43 per cent of the total production of basic dyes in 1930.

(3) Direct Dyes

Description.—The direct or substantive dyes are applied directly to vegetable fibers in a neutral or alkaline bath, without the use of mordants. Their principal application is on cotton and union goods. They are also used on silk, linen, paper, and to a limited extent on wool. Chemically, the direct dyes are principally azo compounds and nearly all of them derivatives of benzidine, tolidine, dianisidine, or diamino stilbene. A small but valuable group of direct dyes belongs to the thiazole class.

Production and sales.—Direct dyes constituted 20.28 per cent of the total output of dyes in 1930 as compared with 19.41 per cent in 1929, and 20.31 per cent in 1928. The production of 17,553,462 pounds in 1930 as against 21,622,907 pounds in 1929 is a decrease of 19 per cent. Sales in 1930 were 18,691,522 pounds, valued at $8,748,427, as compared with 20,486,890 pounds, valued at $10,170,774, in 1929.

The weighted average sales price in 1930 was 46.80 cents a pound as compared with 49.65 cents in 1929, and 49.51 cents in 1928.

The five direct dyes showing the largest production are Direct black EW, Developed black BHN, Chrysophenine G, Direct blue 2B, and Direct green B. The combined production of these five was 54 per cent of the total production of direct dyes.

(4) Mordant and Chrome Dyes

Description.—Mordant and chrome dyes are applied to both vegetable and animal fibers and are usually used in conjunction with metallic mordants. Shades of exceptional fastness are obtained from this group. Chemically, the mordant and chrome dyes are members of the following classes: (1) Anthraquinone, (2) azo, (3) oxazine, (4) triphenylmethane, (5) nitroso, (6) oxyquinone, and (7) xanthone.

Production and sales.—Mordant and chrome dyes constituted 3.63 per cent of the total production of dyes in 1930, as compared with 4.35 per cent in 1929, and 4.56 per cent in 1928. The production in 1930 was 3,137,164 pounds, as compared with 4,846,228 pounds in 1929, and 4,403,934 pounds in 1928, a decrease of 35 per cent from 1929 and of 29 per cent from 1928. Sales in 1930 were 3,270,504 pounds, valued at $1,469,439, as compared with 4,656,901 pounds, valued at $2,597,742, in 1929. The weighted average sales price in 1930 was 44.91 cents a pound, as compared with 55.78 cents in 1929, and 60.62 cents in 1928.

The leading dye of this group is Chrome blue black U, with a production of 952,157 pounds in 1930. The alizarin dyes also belong to this group.

(5) Sulfur Dyes

Description.—Sulfur dyes are used largely on cotton hosiery, uniform cloths, and cotton warps to be woven with wool and later dyed with acid dyes. Sulfur dyes are now prepared by the fusion of various intermediates (containing nitro, amino, or imino groups) with sodium sulfide and sulfur. These dyes are not pure, distinct compounds, and the presence of foreign substances renders them of comparatively low color value. Recent developments, however, have greatly increased the tinctorial value and shade range of many of them.

Production and sales.—Sulfur dyes constituted 16.46 per cent of the total production of dyes in 1930, as compared with 20.29 per cent in 1929, and 19.67 per cent in 1928. Production in 1930 amounted to 14,232,076 pounds, as compared with 22,605,799 pounds in 1929, and 19,001,910 pounds in 1928, a decrease of 37 per cent over 1929 and of 25 per cent over 1928. Sales in 1930 were 16,062,771 pounds, valued at $2,734,656, as compared with 21,214,680 pounds, valued at $4,113,233, in 1929. The weighted average sales price per pound in 1930 was 17.02 cents, as compared with 19.39 cents in 1929, and 20.57 cents in 1928.

The production of Sulfur black and Sulfur brown constituted about 90 per cent of the sulfur color production in 1930.

(6) Vat Dyes

Description.—With the growing demand for fast-dyed fabrics, the consumption of vat dyes is increasing. As a class they are exceptionally fast to light, washing, acids, alkalies, and chlorine. They

find wide application on dyed and printed shirtings, dress goods, ginghams, and other cotton wash goods.

Vat dyes are the most complex of coal-tar dyes, and they are difficult to manufacture and relatively high in cost. Chemically they consist of indigoids (including thioindigoids), anthraquinone derivatives, and the carbazole derivatives. The commercial production of water-soluble leuco derivatives marks an advance not only in this group but in the whole realm of dye manufacture. These may be applied directly to the fiber, and the method of application is less complex than the alkali-hydrosulfite method generally used for vat dyes.

Production and sales.—Vat dyes again rank first in order of production, constituting 37.36 per cent of our total production of dyes in 1930 as compared with 34.81 per cent in 1929 and 33.51 per cent in 1928. Production in 1930 amounted to 32,304,300 pounds, as compared with 38,784,337 pounds in 1929, and 32,375,812 pounds in 1928, a decrease of 17 per cent from 1929 and only 0.2 per cent from 1928. Sales in 1930 were 32,271,157 pounds, valued at $10,445,411, as compared with 37,501,167 pounds, valued at $12,223,010 in 1929, and 31,310,768 pounds, valued at $9,156,995 in 1928. The weighted average sales price per pound was 32.37 cents in 1930 as compared with 32.59 cents in 1929, and 29.25 cents in 1928.

Synthetic Indigo (20 per cent paste) is the ranking dye of this group. Production in 1930 amounted to 24,326,403 pounds, as compared with 29,320,270 pounds in 1929, a decrease of 17 per cent. Sales in 1930 were 24,233,020 pounds valued at $3,319,502, as compared with 29,382,120 pounds, valued at $4,384,189, in 1929. The average unit selling price was 13.7 cents as compared with 14.9 cents in 1929.

Vat dyes, other than Indigo, showing increased production in 1930 were Anthraquinone vat golden orange G, Anthraquinone vat dark blue BO, Anthraquinone vat blue GCD, Anthraquinone vat olive R, Anthraquinone vat red violet RRN and Anthraquinone vat yellow 3G. Decreased production is reported for Anthraquinone vat green B and black, Anthraquinone vat violet RR, Anthraquinone vat yellow G, and Anthraquinone vat brown R.

Table 19 shows the apparent consumption of vat dyes other than Indigo. Exports of the higher priced vat dyes are not separately shown, but are believed to be small. Consequently apparent consumption is assumed to be domestic sales plus imports.

TABLE 19.—*Vat dyes, other than Indigo: Domestic sales, imports, and apparent consumption in the United States*

Year	Domestic sales	Imports	Apparent consumption
	Pounds	*Pounds*	*Pounds*
1914		1,945,304	1,945,304
1925	2,252,803	2,418,842	4,671,645
1926	2,815,241	1,845,208	4,660,449
1927	4,925,512	1,724,910	6,650,422
1928	5,753,919	2,301,761	8,055,680
1929	8,119,047	2,694,901	10,813,948
1930	8,038,137	1,715,960	9,754,097

(7) Color-Lake and Spirit-Soluble Dyes

Description.—The dyes of this class are used principally for the manufacture of color lakes. The spirit-soluble dyes find wide application in lacquers, varnishes, fats, oils, and waxes. Many of them are converted to water-soluble dyes by sulfonation, and as such are used on textiles.

Production and sales.—Color-lake and spirit-soluble dyes constituted 2.96 per cent of our total production of dyes in 1930, as compared with 2.44 per cent in 1929, and 1.89 per cent in 1928. The production of 2,560,936 pounds in 1930, as against 2,724,712 pounds in 1929, is a decrease of 6 per cent. Sales in 1930 were 2,503,754 pounds, valued at $2,438,986, as compared with 2,606,685 pounds, valued at $2,190,511 in 1929, a decrease of 4 per cent in volume and an increase of 11 per cent in value. The weighted average sales price per pound in 1930 was 97.41 cents, as compared with 84.04 cents in 1929 and 83.15 cents in 1928.

(8) Food Dyes

Food dyes include a limited number of selected dyes which meet the specifications of the Food and Drug Administration, Department of Agriculture.

The total production in 1930 was 304,912 pounds, as compared with 356,059 pounds in 1929, and 171,943 pounds in 1928, a decrease of 14 per cent, as against 1929 and an increase of 77 per cent over 1928. Sales in 1930 were 302,586 pounds, valued at $771,516, as compared with 324,497 pounds, valued at $908,132 in 1929. The weighted average sales price per pound in 1930 was $2.55, as compared with $2.80 in 1929.

Export Trade in Dyes

Exports of coal-tar dyes in 1930 amounted to 28,267,340 pounds, valued at $6,245,830, as compared with 34,130,325 pounds, valued at $7,279,086 in 1929, a decrease of 17 per cent in quantity and 14 per cent in value. The weighted average value per pound in 1930 was 22.1 cents, as compared with 21.3 cents in 1929, and 23.5 cents in 1928. The principal foreign markets for dyes produced in the United States in 1930 were China and India.

Table 20 gives the total exports of dyes from the United States from 1925 to 1930, inclusive.

TABLE 20.—*Coal-tar dyes: Exports from the United States*

Year	Quantity	Value	Year	Quantity	Value
	Pounds			*Pounds*	
1925	25,799,889	$6,694,360	1928 [1]	27,824,264	$6,531,619
1926	25,811,941	5,950,159	1929 [2]	34,130,325	7,279,086
1927	26,770,560	5,495,322	1930 [3]	28,267,340	6,245,830

[1] Includes 264,986 pounds put up in packages for household use and valued at $195,441.
[2] Includes 298,242 pounds put up in packages for household use and valued at $223,295.
[3] Includes 271,090 pounds put up in packages for household use and valued at $193,097.

Details as to the quantity and value of exports to the various countries are shown in Part VI, page 106. In previous issues of the

Census of Dyes, monthly exports are shown back to 1909. Table 21 shows, by months, the total exports of dyes from the United States from January, 1928, to June, 1931, inclusive.

TABLE 21.—*Colors, dyes, and stains: Domestic exports, by months*

Month	1928		1929 [1]		1930 [1]		1931 [2]	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	Pounds		*Pounds*		*Pounds*		*Pounds*	
January	1,715,365	$447,984	2,923,382	$651,757	2,057,297	$509,532	2,066,035	$464,494
February	2,847,846	641,697	2,959,703	730,631	2,444,865	515,909	2,537,587	523,707
March	1,734,665	507,723	2,331,603	571,225	3,338,392	729,665	2,641,367	543,962
April	1,787,715	448,441	2,199,079	527,690	3,348,162	714,024	2,231,134	490,241
May	1,897,901	460,306	3,765,147	685,424	2,333,828	575,745	1,781,508	462,071
June	1,719,979	415,103	4,090,145	679,062	2,869,881	557,521	559,913	192,488
July	3,841,016	790,662	3,197,870	642,724	1,152,734	355,120	----------	----------
August	1,350,732	378,858	3,356,022	597,873	1,756,807	404,099	----------	----------
September	1,329,834	413,179	3,562,453	674,366	866,118	283,009	----------	----------
October	5,194,209	823,693	3,342,311	662,293	2,480,621	486,620	----------	----------
November	2,456,927	628,879	1,475,723	464,680	3,136,473	567,212	----------	----------
December	1,948,075	574,844	926,887	391,361	2,482,162	547,374	----------	----------
Total	27,824,264	6,531,619	34,130,325	7,279,086	28,267,340	6,245,830	----------	----------

[1] Includes dyes put up in packages for household use.
[2] Preliminary figures. Include color lakes.

OTHER FINISHED COAL-TAR PRODUCTS

Color Lakes

The production of color lakes in 1930 was 9,563,318 pounds, as compared to 13,244,676 pounds in 1929, a decrease of 28 per cent. Sales were 9,589,719 pounds, valued at $5,692,351, as compared with 12,907,914 pounds, valued at $7,262,543 in 1929, a decrease of 26 per cent in volume and 22 per cent in value. The unit sales value of all color lakes increased from 56 cents in 1929 to 59 cents in 1930.

Increased production in 1930 was reported as follows: Black lakes, 81 per cent; green lakes, 2 per cent; violet lakes, 6 per cent; and yellow lakes, 22 per cent. Substantial decreases in production were reported for lithol red lakes, 56 per cent; maroon lakes, 34 per cent; para red lakes, 49 per cent; and red lakes, 15 per cent.

Medicinals

In this edition of the census, benzaldehyde USP, benzoic acid USP, resorcinol USP, and salicylic acid USP, classified as intermediates in 1929 are classified as medicinals in 1930, in order to obtain more logical grouping of the various coal-tar products. Including these items in 1930 only, production of medicinals was 7,508,182 pounds as compared with 9,538,610 pounds in 1929, or a decrease of 21 per cent.

Sales in 1930 were 5,449,954 pounds, valued at $7,879,860. The average sales value per pound, excluding the items mentioned above, was $1.81 as compared with $1.76 in 1929 and $2.16 in 1928.

Table 22 gives the production of certain coal-tar medicinals and the total production of all medicinals from 1923 to 1930 inclusive. For many individual medicinals, production and sales figures can not be published without disclosing confidential information.

TABLE 22.—*Coal-tar medicinals: Production of selected list*

Name	1923	1924	1925	1926	1927	1928	1929	1930
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Acetanilide	564, 498	425, 950	158, 756	458, 927	366, 842	480, 273	355, 019	297, 778
Arsphenamine	616	555	278	444	265	----------	----------	280
Aspirin	1, 525, 795	1, 366, 530	1, 499, 166	1, 823, 748	1, 715. 686	1, 816, 015	2, 710, 374	2, 061, 226
Benzocaine	2, 243	2, 080	2, 446	2, 768	3, 974	6, 300	----------	4, 948
Cinchophen	32, 710	56, 003	60, 722	79, 632	84, 212	94, 330	99, 538	93, 765
Neoarsphenamine	3, 365	3, 220	3, 289	4, 113	3, 889	4, 814	5, 525	4, 561
Salol	98, 597	----------	118, 869	84, 182	51, 504	----------	----------	----------
Sodium salicylate	416, 382	412, 707	415, 465	469, 345	492, 558	456, 195	455, 462	412, 806
Sulfoarsphenamine	164	743	734	847	800	862	792	----------
Total coal-tar medicinals	3, 273, 085	2, 967, 944	3, 237, 796	3, 696, 196	3, 598, 839	4, 008, 393	5, 000, 205	[1] 7,508, 182

[1] Includes benzaldehyde USP, benzoic acid USP, resorcinol USP, and salicylic acid USP, not included in previous years.

Salicylic acid and the salicylates.—This group of medicinals accounts for 5,364,593 pounds, or 71 per cent of the production of all coal-tar medicinals in 1930, as compared with 7,494,500 pounds in 1929, or 79 per cent. Sales in 1930 were 3,725,960 pounds, valued at $2,194,239, or 68 per cent of the total volume and 28 per cent of the total sales value for all coal-tar medicinals.

In 1930 the production of salicylic acid USP decreased 34 per cent; and the decrease in sales was 25 per cent in volume and 27 per cent in value. The production of aspirin decreased 24 per cent. During the same period sales decreased 18 per cent in volume and 20 per cent in value. The average sales value per pound decreased from 79 cents to 77 cents. Other salicylates showing decreased production were magnesium salicylate about 75 per cent, although sales decreased only 19 per cent; mercury salicylate about 10 per cent, although sales increased about 12 per cent; and sodium salicylate about 10 per cent. Decreased production and sales are reported for strontium and zinc salicylates. Increased production in 1930 is reported for salol, bismuth salicylate and subsalicylate, methylene citryl salicylate, and caffeine sodium salicylate.

Benzoic acid and derivatives.—The production of benzoic acid USP was 593,442 pounds, which was a substantial increase over 1929. Sales were 145,081 pounds, valued at $68,969, or 48 cents a pound, as against 128,093 pounds valued at $64,921, or 51 cents a pound in 1929. Most of the medicinal benzoates show increased production and sales in 1930 over 1929.

Other medicinal products.—Production and sales of medicinal dyes decreased appreciably in 1930.

The production of arsphenamine and its derivatives, neoarsphenamine, silver arsphenamine, and sulfoarsphenamine in 1930 decreased about 18 per cent, whereas sales decreased 4 per cent. The production of neoarsphenamine, the most important of this group, decreased 17 per cent in 1930 from 1929. Sales were 4,824 pounds valued at $1,078,586, as compared with 4,831 pounds valued at $1,120,633 in 1929. Production of sulfoarsphenamine, next in importance, decreased 40 per cent. Sales were 501 pounds valued at $130,939, as compared with 730 pounds valued at $191,003 in 1929. Neocinchophen production substantially decreased in 1930, as also did the volume and value of sales.

Production and sales of the barbituric acid derivatives increased substantially in 1930.

Other medicinals showing increased production in 1930 over 1929 include: Apothesine, benzocaine, benzyl succinate, formidine, tetraiodophenolphthalein sodium salt, lithium benzoate, mercurochrome, procaine, resorcinol, and phenylethyl malonic methyl ethyl ester.

Decreased production is reported for acetanilide, acetphenetidin, aminopyrene, chloramine T and dichloramine T creosote carbonate, guaiacol liquid, mercurosal, and phenolphthalein.

Medicinals reported in 1930, but not in 1929, were: Antipyrine, borocaine, dibenzyl succinate, n-diethylaminoisopentyl-8-amino-6-methoxyquinoline, dihydronol, hexylresorcinol, phenylethyl malonic diethylate, phenylmethyl malonate, pyramidon and trichlorethyl alcohol urethane compounds.

Flavors and Perfume Materials

There is no sharp line of demarcation between these two classes of coal-tar chemicals, many of them being used both as flavors for food products and as perfumes for soaps and other toilet articles. Separate classification of some of them is therefore purely arbitrary.

Production of flavors.—The production of flavors in 1930 was 2,010,012 pounds, as compared with 2,292,450 pounds in 1929, a decrease of 12 per cent. Sales in 1930 were 2,030,601 pounds, valued at $2,738,704, as against 2,253,414 pounds, valued at $3,517,182 in 1929, a decrease of 10 per cent in volume and of 22 per cent in value. The weighted average selling price per pound decreased from $1.56 in 1929 to $1.35 in 1930.

The production of methyl salicylate, or artificial oil of wintergreen, in 1930 decreased 10 per cent, while the sales decreased 7 per cent in volume and 12 per cent in value. The unit value decreased from 35 cents to 33 cents.

Vanillin, another important synthetic aromatic chemical, is made from guaiacol and also from eugenol (extracted from cloves). One part of vanillin equals 400 parts of vanilla pods. Production in 1930 decreased 17 per cent whereas sales decreased 14 per cent in volume and 27 per cent in value. The value per pound decreased from $6.23 in 1929 to $5.34 in 1930.

Synthetic coumarin is produced from salicylic aldehyde, and is said to possess 65 times the strength of prime Angostura tonka beans. Its principal use is as a flavor in tobacco, butter, and soft drinks; it is also used in perfumery and in medicine to mask the odor of iodoform. Production increased in 1930, but sales decreased 13 per cent in volume.

Increased production is reported for ethyl, methyl, and propyl cinnamates. Ethyl benzoate, ethyl salicylate, and saccharin production decreased in 1930 from 1929.

Production of perfumes.—The production of synthetic perfume materials of coal-tar origin in 1930 was 1,042,232 pounds, a decrease of 557,198 pounds from 1929, or 35 per cent. Sales were 1,018,867 pounds, valued at $745,208, as compared with 1,480,368 pounds, valued at $1,082,602 in 1929, a decrease of 31 per cent in volume and 30 per cent in value. The average weighted value per pound was the same for both years—73 cents.

Increased production in 1930 over 1929 is reported for acetophenone, amyl cinnamic aldehyde, benzophenone, benzyl butyrate, benzyl cinnamate, benzyl propionate, isobutylphenyl acetate, methyl acetophenone, methyl anthranilate, methyl benzoate, and phenylethyl alcohol.

Products showing decreased production include: Amyl salicylate, benzyl acetate, cinnamic alcohol, cinnamic aldehyde, diethyl phthalate, dimethyl hydroquinone, dimethyl phthalate and methylphenyl acetate. Production of perfume materials reported in 1930 but not in 1929 include: Diamyl phthalate, ethyl anthranilate, ethylmethyl anthranilate, isobutyl benzoate, and methyı b-naphthyl ether.

Synthetic Resins

The total production of synthetic resins of coal-tar origin in 1930 was 30,867,752 pounds, as compared with 33,036,490 pounds in 1929, a decrease of 7 per cent. Sales in 1930 were 24,014,093 pounds, valued at $7,323,656 as compared with 30,660,513 pounds, valued at $10,393,397 in 1929, or a decrease of 22 per cent in volume and 30 per cent in value. The production of resins derived from phenol and cresol in 1930 was 18,338,389 pounds, and sales were 17,428,687 pounds, valued at $6,576,023, or a decrease of 30 per cent in production, 31 per cent in volume, and 33 per cent in value of sales, as compared with 1929. The production of other types, including those derived from coumarone and indene, from phthalic anhydride, and the new resins from resorcinol, totaled 12,529,363 pounds, with sales of 6,585,406 pounds, or an increase of 84 per cent in production and of 19 per cent in sales over 1929.

TABLE 23.—*Synthetic resins: Production and sales*

Year	Production	Sales	Value	Unit value	Number of producers
	Pounds	*Pounds*			
1927	13,452,230	13,084,313	$6,094,656	$0.47	7
1928	20,411,465	20,778,856	7,211,958	.35	9
1929	33,036,490	30,660,513	10,393,397	.33	12
1930	30,867,752	24,014,093	7,323,656	.30	15

The production and sales of synthetic resins of coal-tar origin have increased steadily each year, except in 1930. Although the decrease in 1930 from 1929 was appreciable, it did not exceed the average for other commodities and, as shown in the preceding table, the increases over 1927 and 1928 are very substantial. A gradual decrease in value per pound has occurred during the past four years to a level in 1930, 35 per cent below that of 1927. The number of producers has increased each year.

Outstanding features of this industry in 1930 were: (*a*) The use of resorcinol in the manufacture of resins, used almost exclusively for phonograph records; (*b*) increased demand for resins derived from coumarone and indene; (*c*) a series of patent agreements, announced in April, 1931, by the General Electric Co. and its controlled companies; E. I. du Pont de Nemours & Co. and its controlled companies; American Cyanamid Co. and its controlled companies (including the

Rezyl Corporation); and the Ellis-Foster Co., which, together with the Rezyl Corporation, controls the patents of Carleton Ellis in this field.

These agreements are expected to remove the restraint upon the development of synthetic resins; each manufacturer will be free to proceed with development and commercial production, with the assurance of immunity from prosecution under patents owned or applied for by other producers. Greatly increased activity in synthetic resins is expected to result.

Paint from synthetic resins.—A paint radically different from paints heretofore used as protective and decorative coatings was introduced during the last year by an American manufacturer. The vehicle used in the preparation of this paint is essentially a composition of glyceryl phthalate instead of the drying oils employed in the manufacture of ordinary interior and exterior finishes.

After exhaustive laboratory and field tests the producer claims the following advantages over ordinary paint: (1) Greatly increased durability; (2) resistance to checking or cracking; (3) longer retention of gloss, color, and original appearance; (4) extreme resistance to moisture, molds, and fungi; (5) increased protection against corrosion; and (6) quick drying even under adverse weather conditions.

Photographic Chemicals

Because of their strong reducing properties, some coal-tar chemicals are used for developing photographic films, plates, and prints. Although popularly known as developers, they are sold under a variety of trade names.

The production of photographic chemicals increased in 1930 over 1929, approximately 8 per cent. Production was 624,828 pounds, as compared with 580,947 pounds in 1929. Sales in 1930 were 605,635 pounds, valued at $761,572 as against 580,150 pounds, valued at $790,981 in 1929, an increase of 4 per cent in volume and a decrease of 4 per cent in value.

Synthetic Tanning Materials

The synthetic tanning materials known as syntans have come into commercial use in Germany and England since 1912. In this country, their use in the tanning of leather, together with natural tanning extracts, is increasing. The output in 1930 represents a slight increase over 1929. Neither production nor sales figures can be published without disclosing confidential information.

Synthetic tans are especially satisfactory for producing light colors on leathers. They are made by the condensation of certain coal-tar derivatives, such as the sulfonated phenols, cresols, and naphthols, with formaldehyde in the presence of an acid, and are commonly used in conjunction with natural tanning extracts. Less time is required to tan with the synthetic than with the natural tanning materials.

STATISTICS OF PRODUCTION AND SALES

TABLE 24.—*Dyes and other finished coal-tar products: Production and sales, 1930*

[The number in the first column identifies the dyes according to the Colour Index number. The second column gives the common name of the product. The numbers in the third column refer to the numbered alphabetical list of manufacturers printed on p. 109. An X signifies that a manufacturer did not consent to the publication of his identification number in connection therewith. A blank in the fourth and fifth columns indicates that the sales figures can not be published without revealing information in regard to the output of individual firms. A blank in the seventh column indicates that the production of the corresponding dye in the United States can not be published without revealing information in regard to the output of individual firms. The figures thus concealed are, however, included in the total]

Colour Index No.	Name	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
			Quantity	Value	Average price per pound	
	Total finished coal-tar products.[1]		*Pounds* 135,058,742	$65,534,688	$0.49	*Pounds* 141,064,546
	NITROSO COLORING MATTERS					
5	Naphthol green	7, 21, 29				
	NITRO COLORING MATTERS					
10	Naphthol yellow S	29, 36				
	AZO COLORING MATTERS					
	Monoazo coloring matters					
16	Acid yellow G	8, 29, 102				
17	Spirit yellow R	8, 21, 39, 102, X				18,394
19	Butter yellow	8, 21, 29, 39, 63, X	13,582	11,622	.86	9,954
20	Chrysoidine Y	29, 48, 63, 102	633,186	189,101	.30	576,751
21	Chrysoidine R	29, 39, 48, 63, 102				
22	Oil yellow AB	29				
23	Oil orange	39				
24	Sudan I	8, 29, 39, 48, 63, 102, 105, X.	50,148	35,054	.70	55,701
26	Croceine orange	8, 36, 102, 130	18,251	9,085	.50	13,822
27	Orange G	48, 63, 102				
28	Ponceau G	63				
29	Chromotrope 2R	102, 105				
30	Fast acid fuchsine B	8, 29, 102, 105, 112	34,925	29,734	.85	55,930
31	Amido naphthol red G	7, 8, 29, 36, 39, 48, 63, 102.	177,929	59,410	.33	173,487
32	Brilliant acid red B	112				
35	Brilliant lake red R	29				
36	Chrome yellow 2G	8, 29, 36, 63, 102, 112	52,385	22,852	.44	45,081
40	Chrome yellow R	7, 8, 29, 36, 39, 63, 117, 130.	36,003	20,899	.58	40,792
44	Para red	X				
52	Mordant yellow 4G	8				
53	Victoria violet	7, 29, 36, 63, 102, 105	45,097	31,311	.69	46,420
54	Lana fuchsine	48, 112, 130				
55	Azo coralline	29, 63				
56	Chromotrope 6B	102, 105				
57	Amido naphthol red 6B	7, 8, 29, 36, 48, 63, 102, 105, 117.	113,343	53,773	.47	91,398
61	Oil yellow OB	8, 29				
69	Toluidine red RL	X, X				
73	Sudan II	8, 29, 39, 63, 102	19,925	15,937	.80	27,731
79	Ponceau 2R	8, 29, 36, 48, 63, 102, 105, 130.	315,858	158,221	.50	341,932
81	Oil brown	8, 63				
82	Lake claret	X				
84	Double ponceau R	48				
88	Bordeaux B	7, 29, 36, 39, 48, 102, 130.	63,872	30,598	.48	63,322
90	Chromotrope 10B	105				
101	Chromate brown B	29, 117				
105	Acid chrome brown R	7, 48, 63				
110	Chrome flavine G	63, 117				
113	Oil red S	105				
114	Azo eosine G	8, 29, 105				
119	Eosamine G	105				
122	Chrome yellow 5G	7				

[1] Except synthetic tanning materials.

TABLE 24.—*Dyes and other finished coal-tar products: Production and sales, 1930*—Continued

Colour Index No.	Name	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
			Quantity	Value	Average price per pound	
	AZO COLORING MATTERS—con.					
	Monoazo coloring matters—Continued.		*Pounds*			*Pounds*
126	Direct pink E2GN	105				
128	Direct pink	29, 102				
130	Direct pink EBN	105				
138	Metanil yellow	7, 29, 36, 48, 63, 102	573, 231	$302, 547	$0. 53	592, 011
145	Azo flavine 2R	63				
146	Azo yellow	8, 29, 63, 102	49, 216	33, 706	.68	54, 411
148	Resorcin yellow	29, 39				
151	Orange II	29, 36, 63, 102	1, 107, 989	269, 133	.24	845, 299
156	Permanent orange R paste	8				
160	Hansarubin	63				
161	Orange R	29, 48, 102				
162	Fast yellow N	39				
163	Lake red 4B	8, 36, 48, 130				
165	Lake red C (100 per cent)	8, 29, 48, 63, 130	298, 970	350, 744	1. 17	293, 606
167	Acid chrome brown B	63, 102				
168	Acid chrome garnet R	63, 102				
169	Chrome violet B	48, 63, 102, 117	6, 354	5, 237	.82	
170	Chrome black PV	48, 63, 102				
175	Acid chrome brown N	63				
176	Fast red A	29, 36, 63, 102, 105, 112, 130.	93, 808	52, 185	.56	94, 769
179	Azo rubine	7, 8, 36, 48, 63, 102, 105.	137, 310	81, 784	.60	124, 885
180	Fast red VR	7, 8, 36, 63, 102, 105, 112, 156.	120, 841	54, 518	.45	68, 553
183	Croceine scarlet 3BX	36				
184	Amaranth	8, 29, 36, 63, 102, 130	17, 415	11, 449	.66	16, 481
185	Cochineal red	36, 63, 102, 112	84, 780	40, 154	.47	62, 264
189	Lake red R (100 per cent)	36, 63, 102, 130, 132, X.	607, 889	507, 212	.83	598, 415
195	Mordant yellow	7, 8, 36, 102				
197	Chrome yellow RN	102				
201	Chrome blue black B	21, 36, 48, 63, 102				
202	Chrome blue black U	21, 36, 39, 48, 63, 102, 117.	1, 077, 245	239, 494	.22	952, 157
203	Chrome black T	36, 48, 63, 102				
204	Chrome black A	29, 36, 48, 63, 102, 117.				
208	Fast acid blue R	7, 29, 48, 63, 102, 105	134, 512	70, 839	.53	132, 923
209	Fast acid blue B	7, 102, 105				
214	Lake red D	63				
216	Chrome red B	29, 36, 39, 48, 63, 102, 117, 156.	70, 832	41, 388	.58	81, 380
225	Direct pink R	29, 105				
	Other monoazo coloring matters.	102				
	Total monoazo coloring matters.		7, 789, 490	3, 792, 736	.49	7, 209, 622
	Disazo coloring matters					
234	Resorcin brown B	7, 8, 29, 36, 39, 48, 63, 102, 112.	158, 278	90, 030	.57	137, 829
235	Resorcin dark brown	7, 8, 29, 39, 102, 112				14, 199
238	Acid chrome brown G	48				
246	Acid black 10B	7, 8, 36, 48, 63, 102, 105, 112, 117, 130.	1, 545, 292	589, 978	.38	1, 532, 18
247	Acid dark green A	39, 105				
248	Sudan red	8, 63				
252	Brilliant croceine	8, 29, 36, 48, 63, 102, 130.	294, 910	191, 236	.65	279, 796
254	Ponceau 5R	63				
256	Cloth red 3G	48				
258	Sudan IV	36, 39, 48, 102, X				
262	Cloth red 2B	8, 29, 36, 63, 102, 117.	23, 886	17, 539	.73	24, 102
267	Neutral gray G	29, 105				
271	Fast acid black R	63				
274	Milling orange G	7, 8, 29				9, 361
275	Cloth scarlet G	29, 48				
277	Croceine scarlet	7				

TABLE 24.—*Dyes and other finished coal-tar products: Production and sales, 1930*—Continued

Colour Index No.	Name	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
			Quantity	Value	Average price per pound	
	AZO COLORING MATTERS—con.					
	Disazo coloring matters—Con.		*Pounds*			*Pounds*
278	Direct fast red 8BL	7, 8, 21, 29, 63, 102, 105, 112.	29,625	$57,098	$1.93	41,170
280	Scarlet EC	8, 102				
288	Fast cyanine G	7				
289	Fast cyanine 5R	7, 29, 48, 63, 102, 105.	545,623	270,480	.50	394,828
294	Acid black B	102				
299	Chrome black F	7, 36, 48, 63, 102, 105.	200,099	117,735	.59	226,109
302	Chrome blue green B	7, 48, 63				
304	Fast acid black N2B	36, 105				
306	Fast acid black F	63				
307	Fast cyanine black B	7, 8, 48, 63, 102	250,949	159,063	.63	189,571
308	Naphthylamine black D	48, 63				
315	Naphthol black 2B	39				
316	Developed blue NA	102, 105				
317	Developed blue B	48, 63, 102				
319	Direct fast heliotrope 2B	48, 105				
324	Developed brilliant orange GR.	48, 121				
326	Direct fast scarlet	7, 36, 48, 102, 105	268,283	283,495	1.06	247,165
331	Bismarck brown	29, 48, 63, 102	101,016	39,033	.39	
332	Bismarck brown 2R	7, 29, 36, 48, 63, 102	379,983	149,767	.39	317,809
336	Acid chrome black F	8, 63				
343	Chrome fast yellow C	7, 63				
344	Milling red G	29				
346	Direct fast yellow 5 GL	48, 105				
349	Direct fast yellow 4 GL	105				
353	Direct fast pink 2BL	29, 48, 102, 112				18,353
364	Paper yellow	8, 29, 48, 102, 105	168,533	113,766	.68	167,185
365	Chrysophenine G	29, 48, 102, 105	747,131	349,091	.47	757,524
370	Congo red	48, 102, 105				
374	Direct orange TA	102				
375	Congo corinth G	7, 8, 48, 63, 102, 105, 112.	88,837	61,153	.69	63,180
376	Direct rubine	36, X				
382	Direct scarlet B	7, 8, 29, 36, 63, 102, 105, 112, X.	229,771	233,233	1.02	260,891
385	Bordeaux	36				
387	Direct violet B	7, 36, 102, 105				
390	Direct brilliant blue R	112				
393	Direct violet O	105				
394	Direct violet N	8, 29, 36, 48, 63, 102, 105, 112.	38,886	35,011	.90	40,725
395	Developed black RO	8				
400	Direct fast red 9BL	48				
401	Developed black BHN	7, 8, 36, 48, 63, 102, 105, 112.	1,335,646	421,947	.32	1,356,833
405	Direct cyanine R	102				
406	Direct blue 2B	7, 8, 29, 36, 48, 63, 102, 105, 112, X.	970,170	231,027	.24	654,236
409	Direct orange DB	105				
410	Chrysamine G	8, 48, 102, X				
411	Cresotine yellow G	102				
415	Direct orange R	7, 36, 48, 63, 105	37,000	20,261	.55	35,079
419	Direct fast red F	7, 8, 29, 36, 48, 63, 102, 105, 112.	119,897	79,237	.66	109,431
420	Direct brown M	7, 8, 29, 36, 39, 48, 63, 102, 105, 112.	125,709	74,961	.60	122,377
423	Direct brown B	7, 112				
430	Polar red G	36, 105, X				
431	Acid chrome red	105				
436	Direct brilliant red 8B	7, 36				
443	Milling red 2G	8, 29				
446	Direct orange RT	8, 48, 102	21,011	14,708	.70	18,496
448	Benzopurpurine 4B	36, 48, 102, 105	441,329	192,589	.44	420,318
450	Benzopurpurine B	7				
459	Congo orange R	105				
464	Direct blue R	105				
471	Direct blue 3R	102				
472	Direct blue BX	36, 102, 105	17,506	6,002	.34	
473	Direct blue G	48				

TABLE 24.—*Dyes and other finished coal-tar products: Production and sales, 1930*—Continued

Colour Index No.	Name	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
			Quantity	Value	Average price per pound	
	AZO COLORING MATTERS—con.					
	Disazo coloring matters—Con.		*Pounds*			*Pounds*
477	Direct blue 3B	7, 8, 36, 39, 102, 105	64,021	$24,808	$0.39	
478	Direct orange G	8, 63, 102				64,677
487	Acid milling red B	8, 29, 63, 121	19,296	28,898	1.50	
495	Benzopurpurine 10B	36, 48, 102, 105	23,952	20,190	.84	
502	Direct azurine G	36, 48, 102, 105	52,690	34,918	.66	66,161
508	Direct brilliant blue G	105				
512	Direct blue RW	36, 48, 102, 105	180,021	129,087	.72	141,912
515	Direct blue B	102				
518	Direct pure blue 6B	8, 36, 48, 102, 105	399,404	247,288	.62	412,503
520	Direct pure blue	7, 29, 36, 48, 102, 105.	123,841	60,285	.49	52,252
	Other disazo coloring matters	102				
	Total disazo coloring matters		10,881,936	5,588,227	.51	10,109,814
	Trisazo coloring matters					
533	Direct fast blue FR	48, 63				
539	Direct fast black FF	7, 8, 36, 48, 63, 102	232,751	114,906	.49	220,167
552	Diazo black RS	102, 105				
561	Direct brown BT	7, 29. 102, 105				41,107
576	Direct fast blue B	48, 102				
577	Direct brown T2G	7				
581	Direct black EW	7, 36, 48, 63, 102, 105, 112.	6,637,129	1,774,307	.27	6,203,135
582	Direct black RX	7, 8, 36, 48, 63, 102, 105, 112.	553,151	159,296	.29	335,003
583	Direct green ET	7, 8, 36, 63, 102, 105, 112.	104,495	50,436	.48	71,382
589	Chloramine green B	7, 8, 105, 112	80,971	42,049	.52	46,626
590	Direct steel blue G	8, 105				
592	Direct black HW	112				
593	Direct green B	7,8,29,36,48,63,102, 105, 112, 117.	533,137	210,889	.40	520,467
594	Direct green G	7, 36, 48, 112				
596	Direct brown 3GO	7, 8, 36, 39, 48, 63, 102, 105, X.	485,202	174,276	.36	402,825
597	Direct brown R	8, 112				
598	Congo brown G	8, 36, 48, 63, 102, 105, 112, X.				
601	Congo brown R	7, 48				
	Other trisazo coloring matters	102				
	Total trisazo coloring matters.		9,013,133	2,849,514	.31	8,183,730
	Tetrakisazo coloring matters					
606	Direct brown G	29, 63, 112				
608	Direct brown B	105				
	Other tetrakisazo coloring matters.	102				
	All other azo coloring matters	7, 8, 21, 29, 36, 39, 48, 63, 71, 80, 102, 105, 112, 117, 121, 130, 154, 156, X, X, X.	2,937,736	2,961,828	1.00	3,237,013
	Total azo coloring matters.		30,622,295	15,192,305	.50	28,740,179
	STILBENE COLORING MATTERS					
620	Direct yellow R	7, 29, 36, 39, 102, 105.	268,100	96,731	.36	230,002
621	Chloramine orange G	7, 29, 102, 105	74,336	57,721	.78	88,306
622	Stilbene yellow	21, 29, 36, 48, 105				
	All other stilbene coloring matters.	29, 102				
	Total stilbene coloring matters.		526,419	294,417	.56	498,261

TABLE 24.—*Dyes and other finished coal-tar products: Production and sales, 1930*—Continued

Colour Index No.	Name	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
			Quantity	Value	Average price per pound	
	PYRAZOLONE COLORING MATTERS		*Pounds*			*Pounds*
631	Direct chrysoine G	36				
636	Fast light yellow 2G	8, 48, 63, 102, 105, 121.	70,812	$77,887	$1.10	83,129
639	Fast light yellow	8, 36, 105, 121				
640	Tartrazine	29, 63, 102, 121				
652	Chrome red B	8, 29, 36, 48, 63				
653	Direct orange GR	8, 121				
654	Developed fast yellow 2G	48				
	Other pyrazolone coloring matters.	63				
	Total pyrazolone coloring matters.		729,313	597,172	.82	747,812
	KETONIMINE COLORING MATTERS					
655	Auramine and base	29, 48, 93, 102	829,082	697,859	.84	801,535
	TRIPHENYLMETHANE AND DIPHENYLNAPHTHYLMETHANE COLORING MATTERS					
657	Malachite green	29, 48, 102	220,509	257,376	1.17	
662	Brilliant green	29				
666	Acid green B	29, 36, 48, 63, 102	52,929	54,478	1.03	48,700
667	Fast acid green B	29, 63, 102				
670	Acid light green	48				
671	Acid glaucine blue	48, 102				
676	Para fuchsine	135				
677	Magenta	2, 29, 36, 108, 130	20,655	37,234	1.80	28,527
680	Methyl violet and base	29, 48, 73, 82, 102	608,476	437,034	.72	605,425
681	Crystal violet	48				
689	Spirit blue	2, 29, 102				
696	Fast acid violet 10B	48				
698	Acid violet	29, 36, 48, 63, 102	256,813	237,252	.92	297,859
699	Acid fast violet BG	102				
704	Alkali blue	2, 29, 80, 102, 108, 130, 135, 156.	498,456	499,089	1.00	449,993
707	Soluble blue	2, 29, 108, 135	36,583	76,257	2.08	39,710
712	Patent blue	29, 63, 102				
714	Patent blue A	63, 102				
724	Aurine	48				
729	Victoria blue B and base	29, 48				
733	Fast acid blue B	48				
735	Naphthalene green V	48, 102				
736	Acid blue B	29				
737	Wool green S	29, 48, 63, 102	76,725	68,619	.89	85,452
	All other triphenylmethane and diphenylnaphthylmethane coloring matters.	29, 63, 102				
	Total triphenylmethane and diphenylnaphthylmethane coloring matters.		2,480,741	2,669,570	1.07	2,518,282
	XANTHENE COLORING MATTERS					
749	Rhodamine B and base	48, 93, 105				
752	Rhodamine 6G	48				
766	Uranine	29, 80				
768	Eosine	8, 29, 80, 108	186,476	304,956	1.64	217,053
773	Erythrosine B	8, 29, 80, 108				
778	Phloxine	29				
779	Rose bengale B	29, 108				
	Total xanthene coloring matters.		699,885	728,236	1.04	833,013

TABLE 24.—*Dyes and other finished coal-tar products: Production and sales, 1930*—Continued

Colour Index No.	Name	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
			Quantity	Value	Average price per pound	
	ACRIDINE COLORING MATTERS		*Pounds*			*Pounds*
787	Coriphosphine O	121				
788	Acridine orange A	29, 121				
789	Brilliant phosphine G	36, 121				
793	Phosphine	29, 48, 102, 121	149,458	$186,961	$1.25	150,454
794	Phosphine 2G	121				
	QUINOLINE COLORING MATTERS					
801	Quinoline yellow	28, 48, 102				
	THIAZOLE COLORING MATTERS					
812	Primuline	21, 29, 36, 102, 105	130,160	51,749	.40	164,650
813	Direct pure yellow M	21, 105				
814	Direct fast yellow	21, 29, 36, 102, 105, X	172,535	157,964	.92	164,239
815	Thioflavine T	105				
816	Direct brilliant flavine S	X				
	INDOPHENOL COLORING MATTERS					
821	Indophenol	29				
	AZINE COLORING MATTERS					
833	Wool fast blue GL	105				
841	Safranine	29, 48, 102				177,428
842	Methylene violet	73				
843	Safranine MN	102				
860	Induline (spirit-soluble)	29, 63, 102				
861	Induline (water-soluble)	21, 29, 63, 102				
862	Para blue	117				
864	Nigrosine (spirit-soluble)	21, 29, 63, 102	642,670	210,527	.33	696,116
865	Nigrosine (water-soluble)	29, 63, 102	1,252,491	403,532	.32	1,272,357
	All other azine coloring matters.	29, 48, 102				
	Total azine coloring matters.		2,447,362	1,046,620	.43	2,483,507
	ANILINE BLACK AND ALLIED COLORING MATTERS					
873	New fast gray	29, 105				
875	Fur black	29, 63				
	Other aniline black and allied coloring matters.	63				
	OXAZINE COLORING MATTERS					
878	Delphine blue B	102				
883	Gallocyanine	29, 102, 156				
909	Cotton blue	8, 85, 102	42,019	52,208	1.24	40,875
	THIAZINE COLORING MATTERS					
922	Methylene blue	29, 48, 102				
924	Methylene green B	29, 102				
926	Thionine blue	29				
927	New methylene blue	29				
931	Brilliant chrome blue	29, 63				
	SULFIDE COLORING MATTERS					
969	Carbazole vat blue R [2]	48				
971	Carbazole vat blue G [2]	48				
	Sulfur black	48, 63, 85, 102	13,303,681	1,620,557	.12	11,787,138
	Sulfur blue	7, 20, 36, 48, 63, 102	667,801	319,943	.48	513,795
	Sulfur brown	3, 7, 8, 20, 29, 36, 42, 48, 63, 73, 102, 105.	1,051,571	308,401	.29	1,073,388

[2] Totals not included under sulfide coloring matters. In the dyes classified by method of application, these two dyes are included in the vat dyes.

TABLE 24.—*Dyes and other finished coal-tar products: Production and sales, 1930*—Continued

Colour Index No.	Name	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
			Quantity	Value	Average price per pound	
	SULFIDE COLORING MATTERS—continued					
			Pounds			*Pounds*
	Sulfur green	7, 20, 42, 48, 63, 73, 102.	145,488	$113,539	$0.78	104,486
	Sulfur maroon	7, 20, 48, 63, 102	426,800	205,597	.48	308,701
	Sulfur olive	20, 21, 29, 42, 48, 63, 102.	90,625	30,696	.34	64,504
	Sulfur orange	20, 29, 36, 63, 102	31,347	11,082	.35	64,292
	Sulfur tan	7, 29, 36, 42, 63	80,906	26,559	.31	90,432
	Sulfur yellow	3, 7, 20, 29, 36, 42, 48, 63, 102.	264,552	98,282	.37	225,340
	Total sulfide coloring matters.		16,062,771	2,734,656	.17	14,232,076
	ANTHRAQUINONE COLORING MATTERS					
1027	Alizarin	8, 20, 102, 128				
1033	Alizarin orange	20, 102				
1034	Alizarin red S	8, 20, 102				
1035	Alizarin brown	102, 117, 156				
1039	Alizarin GI	105				
1040	Alizarin SX	102				
1053	Acid alizarin blue SE	63, 105				
1054	Acid alizarin blue B	63, 102, 105	377,026	574,253	1.52	359,691
1056	Acid alizarin green G	63				
1062	Anthracene blue WR	102				
1073	Alizarin irisol R	105				
1075	Alizarin astrol B	63				
1076	Cyananthrol R	105				
1078	Alizarin cyanine green E	7, 63, 102, 105, 156	53,234	121,591	2.28	55,272
1080	Acid anthraquinone violet B	105				
1085	Anthraquinone blue black B	63, 102, 105, 156	90,579	130,015	1.44	82,437
1088	Acid anthraquinone blue B	63, 105				
1091	Acid alizarin rubine	63				
	All other anthraquinone coloring matters.	63, 105, 117, 156				
	Total anthraquinone coloring matters.		1,011,371	1,402,136	1.39	1,053,194
	ANTHRAQUINONE VAT COLORING MATTERS (SINGLE STRENGTH)					
1095	Anthraquinone vat yellow GC.	105				
1096	Anthraquinone vat golden orange G.	29, 48, 63, 105	195,465	336,445	1.72	245,957
1097	Anthraquinone vat golden orange R.	102				
1098	Anthraquinone vat scarlet G	63, 105				
1099	Anthraquinone vat dark blue BO.	48, 63, 102, 105, X				
1101	Anthraquinone vat jade green.	105				
1102	Anthraquinone vat green B and black.	48, 63, 102, 105, X	184,540	101,774	.55	182,194
1104	Anthraquinone vat violet RR	48, 63, 102	137,008	264,581	1.93	112,851
1106	Anthraquinone vat blue R	105				
1107	Anthraquinone vat blue RS	48, 63				
1109	Anthraquinone vat blue 3G	48, 105				
1111	Anthraquinone vat blue 5G	105				
1113	Anthraquinone vat blue GCD.	48, 63, 102, 105	639,929	392,155	.61	736,526
1114	Anthraquinone vat blue BCS.	48, 63, 102	217,904	139,177	.64	172,321
1118	Anthraquine vat yellow G	48, 102, 105	460,835	458,835	1.00	448,897
1120	Anthraquinone vat brown B	105				
1129	Anthraquinone vat scarlet R	63				
1131	Anthraquinone vat red 5GK	105				
1132	Anthraquinone vat yellow GK.	48, 105				

TABLE 24.—*Dyes and other finished coal-tar products: Production and sales, 1930*—Continued

Colour Index No.	Name	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
			Quantity	Value	Average price per pound	
	ANTHRAQUINONE VAT COLORING MATTERS (SINGLE STRENGTH)—continued		*Pounds*			*Pounds*
1133	Anthraquinone vat red FF	48, 105				
1134	Anthraquinone vat brilliant violet B.	105				
1135	Anthraquinone vat brilliant violet R.	48, 105				
1146	Anthraquinone vat Bordeaux B.	105				
1150	Anthraquinone vat olive R	48, 63, 105	113,635	$147,032	$1.29	134,795
1151	Anthraquinone vat brown R	48, 63, 105	126,184	209,916	1.66	95,265
1152	Anthraquinone vat brown G	63, 105				
1161	Anthraquinone vat red violet RRN.	48, 63, 105	32,470	47,628	1.47	54,096
1162	Anthraquinone vat red BN	48, 105				
1163	Anthraquinone vat violet BNX.	105				
1169	Anthraquinone vat orange R	105				
1170	Anthraquinone vat yellow 3G	48, 105, X				17,208
	All other anthraquinone vat coloring matters.	29, 48, 63, 102, 105	484,782	655,894	1.15	516,627
	Total anthraquinone vat coloring matters.		4,031,946	5,216,402	1.29	4,197,338
	INDIGOID AND THIOINDIGOID COLORING MATTERS					
1177	Indigo, synthetic, 20 per cent paste.	46, 48, 102	24,233,020	$3,319,502	$0.14	24,326 403
1178	Indigo white	102				
1180	Indigo extract	48, 102				
1183	Tribromindigo RB	46				
1184	Bromindigo blue 2B, 2BD	8, 46, 63, 102				
1207	Vat red B	8, 48				
1208	Vat Bordeaux B	8				
1211	Indigo vat pink FF	29, 48, 105	278,952	404,088	1.45	318,126
1212	Vat red 3B	29, 46, 48, 63, 105	198,046	223,259	1.13	200,592
1217	Vat orange R	29, 48, 63, 105	404,965	575,864	1.42	423,291
1222	Vat violet BR	46, 48				
1228	Vat scarlet G	46				
1229	Vat red R	46				
	All other indigoid and thioindigoid coloring matters.	105				
	FOOD COLORING MATTERS					
22	Yellow AB	8, 29, 50, 102				
61	Yellow OB	8, 29, 50, 102				
80	Ponceau 3R	8, 18, 102, 136, X	25,228	101,390	4.02	26,048
150	Orange I	8, 18, 29, 102, 136, 150, X.	90,706	154,965	1.71	91,940
184	Amaranth	8, 18, 102, 136, 150, X.	75,889	146,743	1.93	68,596
640	Tartrazine	8, 18, 29, 102, 136, X.				
666	Guinea green B	102, 150, X	1,000	12,402	12.40	
670	Light green SF (yellowish)	18, 102, 150				
773	Erythrosine	8, 18, 102, 136, X				6,957
1180	Indigo disulfonic acid	8, 18, 102, 136, X	2,000	26,338	13.17	1,629
	Brilliant blue FCF	18, 102, 150				
	Buttercup yellow	8				
	Fast green FCF	136, 150				
	Ponceau SX	102, 150				
	Sunset yellow FCF	102, 136, 150	10,665	19,318	1.81	
	Total food coloring matters.		302,586	771,516	2.55	304,912
	Bacteriological stains and indicators.	10, 38, 75, 88, 102, 124.				
	All other dyes	48				
	Total dyes		89,971,599	38,621,610	.43	86,480,000

TABLE 24.—*Dyes and other finished coal-tar products: Production and sales, 1930*—Continued

Name	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
COLOR LAKES					
		Pounds			*Pounds*
Black lakes	13, 25, 70, 71, 86, 156, X, X.	101,421	$65,756	$0.65	106,358
Blue lakes	13, 25, 31, 35, 51, 55, 70, 71, 80, 86, 94, 132, 138, 154, 156, X, X, X, X, X, X, X, X.	860,196	714,336	.83	837,659
Brown lakes	13, 25, 35, 86, 94, 130, 132, 156, X.	35,189	7,524	.21	38,678
Eosine lakes	13, 25, 31, 35, 51, 55, 70, 80, 86, 94, 132, 138, 156, X, X, X, X, X, X.	578,592	579,359	1.00	566,884
Green lakes	4, 13, 25, 29, 31, 35, 51, 55, 70, 73, 86, 94, 130, 132, 138, 154, X, X, X, X, X, X, X.	502,103	270,664	.54	496,364
Lithol red lakes	4, 13, 25, 55, 70, 71, 73, 80, 83, 86, 94, 130, 132, 138, 154, 156, X, X, X, X, X, X.	602,509	379,884	.63	626,126
Maroon lakes	4, 13, 25, 31, 35, 51, 70, 71, 73, 83, 86, 97, 122, 130, 132, 154, 156, X, X, X, X, X, X, X.	991,108	588,076	.59	990,497
Orange lakes	4, 13, 25, 35, 51, 55, 70, 71, 80, 86, 94, 130, 132, 138, 154, 156, X, X, X, X, X, X, X.	474,426	126,331	.27	457,487
Para red lakes	4, 13, 25, 31, 51, 71, 73, 80, 83, 86, 94, 122, 132, 154, X, X, X, X, X, X, X, X.	1,128,575	473,292	.42	1,059,241
Red lakes	4, 13, 25, 31, 35, 51, 55, 70, 71, 73, 83, 86, 94, 97, 122, 130, 132, 138, 154, 156, X, X, X, X, X, X, X, X, X.	2,707,558	1,539,413	.57	2,727,782
Scarlet lakes	4, 13, 25, 31, 51, 55, 73, 83, 86, 94, 122, 130, 132, 138, 154, 156, X, X, X, X, X, X, X, X, X.	626,540	241,425	.39	630,775
Violet lakes	2, 13, 25, 29, 31, 35, 51, 55, 70, 71, 73, 80, 82, 86, 94, 132, 138, 154, 156, X, X, X, X, X, X, X, X.	477,887	379,196	.79	482,694
Yellow lakes	13, 31, 55, 70, 71, 73, 80, 86, 94, 132, 138, 154, 156, X, X, X, X, X, X.	503,615	327,095	.65	542,773
Total color lakes		9,589,719	5,692,351	.59	9,563,318
PHOTOGRAPHIC CHEMICALS					
Diaminophenol hydrochloride (amidol).	152				
Hydroquinol	156, X				
p-Hydroxy phenylglycine	52, X, X				
Methyl p-aminophenol sulfate (metol) (rhodol).	52, X				
Total photographic chemicals.		605,635	761,572	1.26	624,828

TABLE 24.—*Dyes and other finished coal-tar products: Production and sales, 1930*—Continued

Name	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
MEDICINALS					
		Pounds			*Pounds*
Acetanilide	37, 46, 96, 101, 109	342,191	$100,295	$0.29	297,778
Acetphenetidin	46, 101				
Acriflavine and neutral acriflavine (3:6-diamino-10-methyl acridine chloride)	1, 102				
Aluminum benzoate	129				
Aminopyrene (4-dimethylamine antipyrene) (ampydin)	100, 102				
p-Aminobenzoyldimethylaminomethyl-butanol hydrochloride	19				
Ammonium o-idoxybenzoate (amidoxyl)	1				
Ammonium salicylate	92				
Antipyrene	46				
Apothesine (hydrochloride of diethylaminopropyl-cinnamate)	X				
Arsphenamine	1, 45, 92, 98, 100, 134	228	45,958	201.57	280
Aspirin (acetyl salicylic acid)	19, 46, 101	2,076,764	1,598,793	.77	2,061,226
Benzaldehyde, USP	X				
Benzocaine (anesthesine) (ethyl-p-amino benzoate)	1, 100, 114, 129	4,023	31,058	7.72	4,948
Benzocaine benzoate	129				
Benzoic acid, USP	33, 46, 48, 72, 74, 101, 129	145,081	68,969	.48	593,442
Benzyl succinate and sodium	98, 129				
Bismuth betanaphthol	98, 109				
Bismuth salicylate and subsalicylate	92				
Bismuth tribromophenol	98, 109				
Borocaine (ethocaine borate)	X				
Brilliant green	102				
Bromeikon (tetrabromophenolphthalein, sodium salt)	92				
Butesin (n-butyl-p-aminobenzoate)	1				
Butesin picrate (di-n-butyl-p-aminobenzoate-trinitrophenol)	1				
Butyn (di-n-butylaminopropyl-p-aminobenzoate)	1				
Caffeine, sodium benzoate	92				
Caffeine, sodium salicylate	92				
Calcium-cresol sulfonate	19				
Calcium-guaiacol sulfonate	19				
Chloramine T (sodium p-toluene sulfochloramide)	101				
Cinchophen (2-phenylquinoline-4-carboxylic acid) (phenyl cinchoninic acid)	1, 29, X, X, X	94,187	411,706	4.37	93,765
Creosote carbonate	72				
Cyclohexenylethylbarbituric acid	19				
Dibenzyl succinate	129				
Dichloramine T (p-toluene sulfodichloramide)	101				
n-Diethylaminoisopentyl-8-amino-6-methoxyquinoline	19				
Dihydranol (2:4-dihydroxyphenyl-n-heptane)	X				
Formidine (methylene disalicylic acid derivative)	X				
Guaiacol liquid	72, 101				
Hexylresorcinol	X				
Hydroxyquinoline sulfate	98				
Iodeikon (antinosin) (tetraiodophenolphthalein sodium salt)	52, 92				
Lithium benzoate	96				

TABLE 24.—*Dyes and other finished coal-tar products: Production and sales, 1930*—Continued

Name	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
MEDICINALS—continued		*Pounds*			*Pounds*
Luminal sodium (phenylethylmalonylurea sodium salt) (phenylethylbarbituric acid sodium salt).	19				
Magnesium salicylate	46, 72, 92				
Mercurochrome (dibromohydroxy mercury fluorescein sodium salt).	75				
Mercurosal (disodiumhydroxymercurisalicyloxy acetate).	X				
Mercury salicylate	92				
Methyl-p-hydroxyaminobenzoate.	100				
Methyl violet	102				
Methylene-citrylsalicylic acid	19				
Monoglycol ester of salicylic acid.	19				
Neoarsphenamine	1, 45, 92, 98, 100, 134	4,824	$1,078,586	$223.59	4,561
Neocinchophen (p-methylphenyl cinchoninic ethyl ester).	1, 29, X				8,354
Parafuchsine	102				
Peralga (1-diethylbarbituric acid 2-aminopyrene).	X				
Phenacaine (ethenyl-p-diethoxydiphenylamidine hydrochloride).	100				
Phenobarbital	1, 19, 92, 98, X	24,069	1,324,769	55.04	29,626
Phenolphthalein	81, 101, 127, X, X	384,931	361,414	.94	386,681
Phenolsulfonates (calcium, copper, potassium, sodium, zinc, etc.).	92, 98				
Phenylethyl malonic diethylate.	1				
Phenylethyl malonic methylethyl ester.	1				
Phenyl malonic diethylate	1				
Phenylmethyl malonate	1				
Piperidine	127				
Potassium acid phthalate	92				
Potassium salicylate	92				
Procaine (p-aminobenzoyl diethyl aminoethanol).	1, 100, 114, 129				
Proflavine (3:6-diamino acridine sulfate).	1, 102				
Proposote (creosote phenylpropionate).	X				
Pyramidon and trichloroethyl alcohol urethane compounds.	19				
Resorcinol, USP	119, X				
Resorcinol monoacetate	52				
Salol	46				
Salicylic acid, USP	46, 72, 101	1,188,443	374,442	.32	2,781,106
Salophen (acetylparaminophenyl salicylate).	19				
Scarlet red extra	102				
Silver arsphenamine	100				
Sodium salicylate	46, 72, 101	381,258	144,284	.38	412,806
Strontium salicylate	72, 92				
Sulfoarsphenamine	1, 92, 98, 100, 134	501	130,939	261.36	
Tetramethyldiaminoethylisopropanol (monohydrochloride of benzoyl).	19				
Trypan blue	102				
Zinc salicylate	92				
Total medicinals		5,449,954	7,879,860	1.45	7,508,182

TABLE 24.—*Dyes and other finished coal-tar products: Production and sales, 1930*—Continued

Name	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
FLAVORS		*Pounds*			*Pounds*
Coumarin, synthetic	46, 56, 96, 101, 140	104,303	$341,086	$3.27	117,936
Ethyl benzoate	56, 60, 61, 113, X	453	580	1.28	
Ethyl cinnamate	56, 60, 61, 140				339
Ethyl salicylate	56, 60, 61				
Methyl cinnamate	56, 60, 61, 144				
Methyl salicylate	46, 72, 101, 140, X	1,406,466	461,689	.33	1,413,118
Propyl cinnamate	54				
Saccharin	101				
Vanillin	56, 60, 64, 96, 101, 147.	296,161	1,581,331	5.34	278,946
Total flavors		2,030,601	2,738,704	1.35	2,010,012
PERFUME MATERIALS					
Acetophenone	56, 61, 64				
Amyl benzoate	54				
Amyl cynnamic aldehyde (buxine).	56, 60, 61, 64, 140, 144.				
Amylphenyl acetate	54				
Amyl salicylate	64, 131, 140, X	21,585	15,583	.72	17,489
Aubepine (anisic aldehyde) (See Part II).					
Benzophenone	56, 61, 64, 144, X				
Benzyl acetate	56, 61, 131, X				
Benzyl alcohol	61, 74, 131				
p-Benzyl anthranilate	56				
Benzyl benzoate	56, 61, 131				
Benzyl butyrate	54				
Benzyl cinnamate	56, 61, 144, X				
Benzyl formate	54				
Benzyl isoeugenol	54				
Benzylphenyl acetate	54				
Benzyl propionate	54, 56, 144, X	453	1,118	2.47	
p-Benzyl propionate	56				
Benzyl valerate	54				
Bromstyrol	X				
Butylphenyl acetate	54				
Cinnamic acid	60, 61				
Cinnamic alcohol	64				
Cinnamic aldehyde	60, 64				
Cinnamyl alcohol	56				
Cinnamyl ketone	56				
Cinnamyl valerate	56				
p-Cresyl acetate	54				
p-Cresylphenyl acetate	56				
Diamyl phthalate	143				
Diethyl anthranilate	54				
Diethyl phthalate	56, 64, 143, X, X				
Dimethylbenzyl carbinol	56				
Dimethylhydroquinone	56				
Dimethylhydroquinone ether	X				
Dimethyl phthalate	X				
Diphenylmethane	140				
Diphenyl oxide	46, 64				
Ethyl anthranilate	54				
Ethylmethyl anthranilate	54				
Guaiacol phenyl acetate	56				
Hydratropic aldehyde	140				
Indol	56				
Isobutyl anthranilate	56				
Isobutyl benzoate	54				
Isobutyl indol	56				
Isobutylphenyl acetate	54, 56, 64				
Isobutyl salicylate	54				
Methyl acetophenone	61, 64, X				
Methyl anthranilate	46, 56, 140, 144				
Methyl benzoate	61, 113, 140, X				
Methylmethyl anthranilate	54, 56				
Methyl-b-naphthyl ether	61				
Methylphenyl acetate	1, 56, 64, 140, 144, X				
Methylphenyl glycidate	56				

TABLE 24.—*Dyes and other finished coal-tar products: Production and sales, 1930*—Continued

Name	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
PERFUME MATERIALS—con.		*Pounds*			*Pounds*
Methyl-p-toyl ketone	56				
b-Naphthyl anthranilate	56				
Nonyl anthranilate	56				
Phenylacetic acid	61				
Phenylacetic ketone	56				
Phenylethyl acetate	1, 54, 140				
Phenylethyl alcohol	56, 64				
Phenylethyl butyrate	54				
Phenylethyl cinnamate	54				
Phenylethyl formate	54				
Phenylethylphenyl acetate	54				
Phenylethyl propionate	54				
Phenylethyl valerate	54				
Phenylglycol acetate	56				
p-Quinoline	56				
Skatol (methyl indol)	56				
Tetrahydroparamethyl quinoline,	56				
Total perfume materials.		1,018,867	$745,208	$0.73	1,042,232
SYNTHETIC PHENOLIC RESINS					
Derived from phenol and cresol.	9, 41, 91, X, X, X, X, X, X.	17,428,687	6,576,023	.38	18,338,389
Derived from other sources	17, 48, 49, 104, X, X.	6,585,406	747,633	.11	12,529,363
Total synthetic phenolic resins.		24,014,093	7,323,656	.30	30,867,752
MISCELLANEOUS COAL-TAR PRODUCTS					
Benzoate of soda	33, 46, 48, 72, 74, 101, 129.	1,089,168	430,502	.40	1,234,668
Benzoyl peroxide	90				
Decalin	107.				
Diazo salts	40				
Fast blue salt B.					
Fast Bordeaux salt GP.					
Fast red salt B.					
Fast red salt GL.					
Fast red salt 3 GL.					
Fast scarlet salt GG.					
Fast scarlet salt R.					
Hexalin	107				
Naphthol AS series	8, 40, 48, 102				
b-Hydroxy naphthoic anilide.					
Napthhol AS, BO.					
Naphthol AS, BR.					
Naphthol AS, D.					
Naphthol AS, OL.					
Naphthol AS, PH.					
Naphthol AS, RL.					
Naphthol AS, SW.					
Neomerpin SA conc	107				
Rapid fast colors	40				
Rapid fast orange RH.					
Rapid fast red GL.					
Rapid fast red GZH.					
Rapid fast red RH					
Rapidogene G dbl.					
Research chemicals	10, 52, 124				
Synthetic tanning materials	17, X				
Tar distillates	1				
Tetralin	107				
Total miscellaneous[1] coal-tar products		2,378,274	1,771,727	.75	2,968,222

[1] Except synthetic tanning materials.

DYES NOT CLASSIFIED BY COLOUR INDEX NUMBER

Manufacturers were requested to report separately, in terms of their familiar pre-war designations, the production of dyes not classified by Colour Index number. The following table is a list of such dyes, together with some new dyes of American development for which there are no foreign equivalents.

Common name	Manufacturers' identification numbers (according to list on p. 109)
A	
Acetate black IV, IV Hy. spl	8
Acetate blue III, IV, V, VII, XII	8
Acetate discharge base III	8
Acetate golden orange I, III	8
Acetate golden yellow VIII, IX, XI, XII	8
Acetate heliotrope I	8
Acetate orange I, II, III	8
Acetate pink II	8
Acetate pure yellow I, II, III	8
Acetate red I, III, V, VII	8
Acetate silk black W	7
Acetate silk blue R	7
Acetate silk brilliant yellow	7
Acetate silk cerise	7
Acetate silk golden yellow	7
Acetate silk green	7
Acetate silk heliotrope	7
Acetate silk orange	7
Acetate silk pink	7
Acetate silk red	7
Acetate silk sky blue G	7
Acetate silk turquoise	7
Acetate violet II	8
Acid alizarin brown 5R	117
Acid alizarin green	156
Acid anthracene brown PG	63
Acid anthracene red B	8
Acid anthraquinone sky blue	105
Acid black AR, RB, 8B, 3G, GRF conc	102
Acid black 10B	29
Acid black DB conc	X
Acid black J conc., 396, 640, 773	39
Acid blue black R	8, 29
Acid brilliant blue 3B	8
Acid brilliant croceine FL	48
Acid brilliant red 5B	8
Acid brown N	X
Acid chrome black G conc	117
Acid chrome brown B	117
Acid chrome brown R	36
Acid chrome green ex. conc	117
Acid coralline	117
Acid fast orange LW	8
Acid fast red BL	29
Acid green black B	36
Acid lake Bordeaux BL	8
Acid light red 4BL	48
Acid milling brown R	8
Acid milling scarlet G	X
Acid milling scarlet RW	8
Acid milling yellow ex	8
Acid naphthol blue black	36
Acid navy blue	112
Acid navy blue B	8
Acid red OA	36
Acid red OTH	105
Acid red brown R	X
Acid rubine BR	48
Acid scarlet G	121
Acid violet RL	36
Acid violet 2RX	29
Acid yellow RS	8
Alizarin acid anthraquinone blue SAWSA	105
Alizarin black	156
Alizarin hematite brown 5R	156
Anthracene acid orange GR	29
Anthracene acid red 5BL	29
Anthracene brown ABX	29
Anthraquinone chrome blue G	105
Anthraquinone vat black RP	105
Anthraquinone vat blue BCL, 3BCSA	63
Anthraquinone vat blue RCX, RSP	105
Anthraquinone vat brilliant green 4G	105
Anthraquinone vat brilliant orange RK	63
Anthraquinone vat brilliant pink B, R	63
Anthraquinone vat brilliant yellow 4G	48
Anthraquinone vat brown RT, 2GA	63
Anthraquinone vat direct black 3G	105
Anthraquinone vat golden orange RRT	29, 63, 105
Anthraquinone vat green RC, 2G	105
Anthraquinone vat navy blue	105
Anthraquinone vat orange RRFA	63
Anthraquinone vat printing red B	63
Anthraquinone vat red G2B	105
Anthraquinone vat red violet 4KA	63
Anthraquinone vat scarlet 3BA	63
Anthraquinone vat yellow 8G	48
Anthraquinone vat violet RFNA	63
Azo eosine 2B	105
Azo fast violet O	102
Azo violet BS, 2B	7
Azoxylene azo b-naphthol	29
B	
Barium toner	29
Basic black APX	48
Benzene azo o-cresol	29
Bis benzene disazo a-naphthol	29
Bis xylene disazo a-naphthol	29
Brilliant acid black	29
Brilliant acid red G	105
Brilliant benzo blue 6B	63
Brilliant milling blue BA	63
Bulletin red	130
C	
Carmine toner	X
Celanthrene black	105
Celanthrene brilliant blue	105
Celanthrene brilliant red	105
Celanthrene brilliant violet B	105
Celanthrene brown BR	105
Celanthrene brown Y	105
Celanthrene fast light yellow	105
Celanthrene orange	105
Celanthrene red Y	105
Celanthrene sky blue B	105
Chromate blue black	36
Chromate brown	7, 29, 63
Chromate brown EB	7, 48
Chromate brown R	156
Chrome black 3G	7, 102

Common name	Manufacturers' identification numbers (according to list on p. 109)
Chrome black SW	48
Chrome black SWR	7
Chrome blue ATX	48
Chrome brilliant orange 2R	8
Chrome brown B	36, 102
Chrome brown G	36, 102
Chrome brown O	36
Chrome brown BG, EB	8
Chrome brown RG	156
Chrome brown EBR, RH	102
Chrome garnet	117
Chrome green	29
Chrome green, B, G, CB	102
Chrome green SN	7
Chrome maroon	117
Chrome orange 3R	102
Chrome yellow	29
Chrome yellow 2G, 3G	102
Crome yellow DS, 5G	36
Chrome yellow SW	48
Chrome yellow SS	63
Chrome yellow YYFP conc	7
Chrysamine K	36
Cloth red R, 2R	102
Copper blue 2RX	7
Croceine scarlet DYP, FP conc	102
D	
Developed beta black N	102
Developed black G	36, 105
Developed black BG	36
Developed black 2BN	105
Developed black OB	102
Developed black D	36, 63, 102
Developed black V	36, 63, 102
Developed blue B, BR	36
Developed Bordeaux 7B	48
Developed Bordeaux 7B conc	102
Developed brilliant scarlet 2BL, 5BL	48
Developed brown R	48
Developed fast blue 2RW	36
Developed fast red 7BL	48
Developed fast violet BL	48
Developed green 2GL	48
Developed indigo blue 4GL	48
Developed orange RR	48
Developed seal brown	X
Diaminogen blue NBB	105
Diaminogen blue NA	48
Direct art black	X
Direct black G	112
Direct black 3G	36, 112
Direct black 3GR	36
Direct black LM	29
Direct blue FF	48, 102
Direct blue NR, R	102
Direct blue 3RX	63
Direct blue 4GL	7
Direct Bordeaux B	102
Direct Bordeaux 6B	63
Direct brilliant violet B	48
Direct brown GB	102
Direct brown K	7
Direct brown CN, TS	112
Direct brown G2R, G3R	36
Direct catechine	48
Direct catechine FF	102
Direct catechine G	102
Direct chrome brown GR	8
Direct chrome brown 5G	7
Direct chrome dark brown	8
Direct copper blue RRX	48
Direct dark blue B	48
Direct fast black B	36
Direct fast black FA	63
Direct fast black LR	105
Direct fast black L	7, 8, 48, 102
Direct fast blue B, R, 2GL, 4GL	36
Direct fast blue GA	63
Direct fast blue 8GL	48
Direct fast blue RL	102
Direct fast brown RK	48
Direct fast brown 4R	105
Direct fast brown FW	X
Direct fast gray M	102
Direct fast gray BL	48
Direct fast gray RA	63
Direct fast light blue FF	36
Direct fast orange, B, EG	48
Direct fast orange R, 2R, RCL	36
Direct fast orange ER	8, 48
Direct fast orange WS	105
Direct fast pink FB	63
Direct fast red A, R	48
Direct fast rubine B conc	102
Direct fast scarlet 4BA	36
Direct fast scarlet 3GM	29
Direct fast violet F	7
Direct fast-violet R	105
Direct fast yellow RL, 5GL	63
Direct gray GL	102
Direct gray G conc., 512 conc	39
Direct green special	7
Direct light brown 4G	48
Direct light gray GG	48
Direct light orange GG	48
Direct navy R	112
Direct navy blue R	7
Direct orange 4G	102
Direct red 8BLN	102
Direct rhoduline red B	48
Direct scarlet 3B	7, 8
Direct violet BB	102
Direct yellow 4GL	7, 102
Duol reds	X
Duraval colors	48
F	
Fast acid blue CM	63
Fast acid light red B	36
Fast acid red 3B, 2GA	63
Fast acid red BL	48
Fast acid red GL	112
Fast acid violet ERR ex	48
Fast acid yellow RA	63
Fast black V	105
Fast brilliant blue EA	7
Fast chrome brown EB, PG	105
Fast crimson R	102
Fast light red BA	63
Fast light yellow E2G	63
Fast milling orange RN	105
Fast milling yellow GN	105
Fast orange FSW	105
Fast red BL	29
Fast scarlet GBA	63
Fast silk Bordeaux	112
Fast silk red RT	112
Fast wool red BL, GL	102
Fast wool violet B	102
Fire red	X
Fuchsine trisazo b-naphthol	29
Fur brown	63
G	
Guinea green	29
H	
Hansa yellow	71, 80
Hansa yellow G	48
Helio Bordeaux BL	63
Helio fast blue BL	63

Common name	Manufacturers' identification numbers (according to list on p. 109)
Helio red RMT ex	63
Hydroform claret F	X
I	
Indigo vat scarlet G	105
Indocyanine B	48
Induline (fat-soluble)	29
L	
Lacquer maroon	130
Lake scarlet G	8
Leather yellow	102
Light fast blue SFF, SFR, 4GL	105
Light fast brown R, 3YL	105
Light fast wool red BL	105
M	
Maroon toner BS, BON	X
Milling green	29
Milling yellow	21
Milling yellow R	29
N	
Naphthylamine black V	105
Neptune blue BRA conc	63
Nigrosine base B, N, NB, R, 2R	102
Nigrosine (fat-soluble)	29
O	
Oil brown	X
Oil brown, D., M., Y	102
Oil brown R	39
Oil orange RR	39
Oil orange 30	X
Oil pink B	102
Oil red	154
Oil red, C, G	39
Oil red F	21
Oil red N, 1700	29
Oil red 322	X
Oil red O, RO, GRO	102
P	
Paper red AD ex	63
Paper scarlet	29
Patent blue B conc	102
Permanent yellow L	29
Pharmacine golden yellow R	121
Pharmacine orange 2R	121
Pharmacine red 3B	121
Pharmacine scarlet G conc	121
Pharmacine violet B	121
Pharmacine yellow R, 2G	121
Phenoform blue BR	63
Pigment Bordeaux 2BL	8
Pigment fast orange L	29
Pigment green B	63
Pigment orange LK paste	8
Pigment red RR	130
Pigment red R ex	29
S	
Safranine 8B	102
Scarlet ink	130
Silk black 4BF	36
Silk brilliant blue 10G	105
Silk brown G	X
Silk navy blue D	105
Silk red brown R	X
Silk scarlet G	X
Silk yellow N	112
Special fast dark mahogany	39
Stilbene direct fast brown 3GL	29
Sudan blue GA	63
Sudan red 2BA	63
Sudan yellow 2GA	63
Sulfon yellow RA	63
T	
Toluene azo b-naphthol	29
W	
Wool black B, GRF	105
Wool blue CB, CG	102
Wool fast orange G	63
Wool red	121

EMPLOYEES AND RATES OF PAY

The number of employees receiving specified rates of pay on December 18, 1930, or on the nearest representative date for which this information could be obtained, as reported by 130 firms manufacturing coal-tar products, is shown in Table 25. The 36 firms for which data are omitted either conducted operations in which coal-tar products were not the primary articles of manufacture or did not have separate departments dealing with them.

In 1914 only 7 firms in the United States manufactured coal-tar products, giving employment to only 528 persons. The 130 firms reporting in 1930 employed 11,391 persons. Comparative figures for number of firms reporting and number of employees are as follows:

Year	Number of firms	Number of employees	Year	Number of firms	Number of employees
1930	130	11,391	1926	139	10,142
1929	131	11,270	1925	154	10,971
1928	131	10,271	1924	158	12,569
1927	133	9,893	1923	181	14,841

Chemists and other technically trained employees in 1930 constituted 15.3 per cent of all employees, as compared with 15.1 per cent in 1929 and 15.3 per cent in 1928. Of the 1,746 employees in this group in 1930, 35.82 per cent received $75 or more per week; 24.74 per cent between $50 and $75; 7.84 per cent between $45 and $50; 10.19 per cent between $40 and $45; and 8.70 per cent between $35 and $40. For employees without technical training the scale of compensation was as follows: 22.25 per cent received between $30 and $35 per week; 23.90 per cent between $25 and $30; and 19.53 per cent between $20 and $25 per week.

TABLE 25.—*Employees and rates of pay in the coal-tar dye and chemical industry 1930*

Wage per week	Number of employees at each specified wage engaged in manufacturing operations			Percentage receiving each specified wage		Percentage receiving each specified wage or more			
	Chemists and technically trained employees	Employees without technical training	All employees	Chemists and technically trained employees	Employees without technical training	Chemists and technically trained employees	Increase over 1929 [1]	Employees without technical training	Increase over 1929 [1]
Under $10	2	32	34	0.11	0.33	100.00	----	100.00	----
$10 but under $15	3	262	265	0.17	2.72	99.89	−0.05	99.67	−0.05
$15 but under $20	15	741	756	0.86	7.68	99.72	.01	96.95	−0.91
$20 but under $25	29	1,884	1,913	1.66	19.53	98.86	−0.02	89.27	−3.61
$25 but under $30	56	2,305	2,361	3.21	23.90	97.20	.08	69.74	−5.96
$30 but under $35	117	2,146	2,263	6.70	22.25	93.99	.87	45.84	−7.72
$35 but under $40	152	950	1,102	8.70	9.85	87.29	1.52	23.59	−4.45
$40 but under $45	178	610	788	10.19	6.33	78.59	.10	13.74	−1.35
$45 but under $50	137	279	416	7.84	2.89	68.40	2.67	7.41	.27
$50 but under $75	432	357	789	24.74	3.70	60.56	3.53	4.52	.75
$75 and over	625	79	704	35.82	0.82	35.82	.31	.82	.42
Total	1,746	9,645	11,391	100.00	100.00	----	----	----	----

[1] Minus sign (−) denotes decrease.

In general rates of pay were somewhat lower in 1930 than in 1929. Table 25 compares specific rates of pay of technically trained employees with rates paid to employees not having such training.

Among the technically trained employees, increases in pay (in percentages) of each group were: 0.87 per cent in the group receiving $30 to $35 per week; 1.52 per cent in the group receiving $35 to $40 per week; and 0.10 per cent in the group receiving $40 to $45 per week. In the pay of the employees without technical training and receiving $40 to $45 per week, there was a decrease of 1.35 per cent. All groups receiving over $45 per week increased slightly, whereas groups receiving less than $45 per week decreased from 0.05 per cent to 7.72 per

cent. Increases in pay were general for all technically trained employees receiving more than $25 per week, and decreases were made in the pay of all nontechnical employees receiving less than $45 per week.

RESEARCH WORK

Of the 166 firms manufacturing dyes and other coal-tar chemicals in 1930, 46 had separately organized research laboratories. In 1929 a total of 168 companies had only 42 research units.

The gross cost of research in these laboratories in 1930, together with that done in laboratories not separately organized for research, was $3,786,294. The net cost of research chargeable to coal-tar products only was $3,432,116, an increase of $443,347 over that so spent in 1929. This cost of research, as reported, is no doubt an understatement of the full cost of experimental work, because the figures do not include in all cases the cost of research in conjunction with manufacturing operations, but not charged against research on bookkeeping records.

Total sales of finished coal-tar products in 1930 were about $66,000,000. Thus the research expenditures of $3,432,116 were equivalent to 5.2 per cent of total sales in 1930, as compared with 3.8 per cent in 1929.

It is highly significant that in a year of acute business depression manufacturers of coal-tar chemicals increased the relative number of research organizations and spent more in experimental activities despite decreased sales. Those in control apparently realize the vital necessity of research in the continued development and expansion of the American coal-tar chemical industry.

PART III

DYES AND OTHER FINISHED COAL-TAR CHEMICALS IMPORTED FOR CONSUMPTION IN THE UNITED STATES, 1930

Part III

DYES AND OTHER FINISHED COAL-TAR CHEMICALS IMPORTED FOR CONSUMPTION IN THE UNITED STATES, 1930

Introduction

Beginning with 1919 the United States Tariff Commission has annually compiled a detailed census of dye imports. These statistics were at first for use in the administration of section 501, Title V, of the tariff act of September 8, 1916, which made the continuance of specific duties on coal-tar products after September 8, 1921, dependent upon the production in the United States of as much as 60 per cent in value of their consumption. As the information was found to be of direct value to manufacturers, consumers, and importers, as well as to the commission itself in considering tariff aspects of the coal-tar chemical industry, the annual census of imports has been continued.

Imports for consumption for the year 1930, including warehouse withdrawals for dyes and other products within paragraphs 27 and 28, have been compiled and published each month under a cooperative arrangement between the chemical divisions of the Department of Commerce and the Tariff Commission. To avoid duplicating this joint compilation the detailed table showing dyes imported in 1930 is not printed in this census. Those desiring information concerning the importation of specific dyes are referred to the monthly list of dye imports (Bulletin I–8000 of the Bureau of Foreign and Domestic Commerce, Department of Commerce).

In tabulating the dye statistics used herein, the commission has followed in the main the Colour Index, issued by the British Society of Dyers and Colourists, and other sources of information in the files.

Dyes which could not be identified by numbers in the Colour Index are classified by the ordinary method of application; as, acid, vat, mordant and chrome, direct, sulfur, basic, and spirit-soluble and color-lake. The classification of a dye by its method of application is often purely arbitrary, as certain colors may be applied by either of two methods.

The rate of exchange used in converting foreign invoice values to United States currency is either the rate given on the invoice, or, in comparatively few cases, the exchange value published by the Treasury Department for the month in which consular certification occurred.

Summary of Imports of Dyes

A total of 4,114,882 pounds of dyes, valued at $3,500,154, was imported in 1930, as against 6,437,147 pounds, valued at $5,374,085 in 1929. The dutiable value in 1930 of dyes imported for consump-

tion, as reported by Foreign Commerce and Navigation of the United States was $5,246,847.

The following summary tables of imports of dyes and other finished coal-tar products are self-explanatory.

TABLE 26.—*Coal-tar dyes: Imports into the United States by country of shipment*

Country of shipment.	Percentage of total quantity		
	1930 [1]	1929	1928
Germany	71.2	67.0	65
Switzerland	26.5	28.8	25
England	2.1	1.4	2
Other countries	.2	2.8	8

[1] Country of origin.

TABLE 27.—*Coal-tar dyes imported into the United States, classified by method of application*

Class	1930				1929			
	Pounds	Per cent of total	Invoice value	Per cent of total	Pounds	Per cent of total	Invoice value	Per cent of total
Acid	904,859	21.99	$892,696	25.50	1,491,313	23.17	$1,521,898	28.32
Vat (including Indigo)	1,715,960	41.70	1,219,729	34.85	2,694,901	41.87	1,825,547	33.97
Mordant and chrome:								
(a) Alizarin	20,203	.50	3,077	.09	69,673	1.08	10,574	.20
(b) Mordant and chrome	229,779	5.58	211,041	6.03	475,835	7.39	444,710	8.27
Total	249,982	6.08	214,118	6.12	545,508	8.47	455,284	8.47
Direct	810,545	19.69	798,246	22.81	977,792	15.19	942,261	17.53
Sulfur	56,643	1.38	25,169	.72	142,919	2.22	72,250	1.35
Basic	215,197	5.23	227,500	6.50	367,568	5.71	386,851	7.20
Spirit-soluble and color-lake	155,051	3.77	116,428	3.32	204,248	3.17	156,522	2.91
Unidentified, unclassified, special	6,645	.16	6,268	.18	12,898	.20	13,472	.25
Total	4,114,882	100.00	3,500,154	100.00	6,437,147	100.00	5,374,085	100.00

TABLE 28.—*Coal-tar dyes of each class, according to method of application, imported in largest quantity during the calendar year 1930, compared with corresponding imports in 1929*

Colour Index No.	Class and type name of dye [1]	1930	1929	Colour Index No.	Class and type name of dye [1]	1930	1929
	ACID DYES				ACID DYES—continued		
		Pounds	*Pounds*			*Pounds*	*Pounds*
	Brilliant wool blue FFB, FFR	72,130	88,858	667	Poseidon green	21,038	39,666
671	Erioglaucine	67,067	63,769		Cloth fast yellow	17,303	21,049
	Indocyanine B	48,500	85,373	833	Neotolyl black TL extra	15,650	9,250
	Alkali fast green 10G	44,375	23,550	714	Wool fast blue BL, GL	14,136	44,377
	Acid black RR	35,476	25,265	1054	Patent blue A	13,979	54,636
	Novazol blue B	29,983	46,296		Alizarin light blue B	13,951	19,466
735	Alkali fast green 3G	27,154	27,031	712	Xylene fast blue FF	13,129	33,273
715	Cyanol	25,418	18,693		Patent blue V	12,808	16,489
	Neolan blue	22,919	52,675		Neolan pink	12,782	33,665
	Brilliant indocyanine	22,115	23,371		Acid milling yellow	12,295	15,955

[1] The type name usually represents the principal color imported in 1930.

TABLE 28.—*Coal-tar dyes of each class, according to method of application, imported in largest quantity during the calendar year 1930, compared with corresponding imports in 1929*—Continued

Colour Index No.	Class and type name of dye	1930	1929
	VAT DYES [2]	*Pounds*	*Pounds*
	Vat golden yellow GK	311,494	441,238
1095	Algol yellow GC	275,130	280,240
1184	Brilliant indigo 4B	113,509	202,375
	Vat printing black B	108,200	162,800
1189	Brilliant indigo 4G	62,583	67,448
	Ciba brown G	53,767	53,562
	Vat yellow [3]	40,688	41,510
1190	Brilliant indigo B	40,596	70,488
1173	Cibanone blue 3G	35,949	52,999
	Vat brown	35,749	46,945
	Vat printing brown	35,135	30,977
	Vat blue green FFB	33,816	1,010
1188	Brilliant indigo 2B	31,246	33,289
	Alizanthrene navy blue	29,389	5,200
1207	Algol red 5B	28,816	21,688
1118	Vat yellow G	26,162	49,658
	Vat golden orange 3G	21,152	32,990
1151	Vat brown R	16,380	18,141
1199	Vat green G	15,838	11,594
	Vat khaki GG	15,550	15,600
	MORDANT AND CHROME DYES		
1027	Alizarin, synthetic	20,203	69,673
720	Eriochrome azurol BC	14,655	41,599
1084	Alizarin viridine FF [2]	13,409	15,922
1034	Alizarin red S	11,716	26,413
219	Eriochrome flavine A conc	10,141	14,331
1033	Alizarin orange	8,926	9,584
905	Gallazine	8,599	16,092
892	Blue 1900 TCD	8,470	11,796
	Modern black	7,274	7,605
1064	Alizarin cyclamine R	7,000	30,599
	Eriochrome red G	6,615	12,127
894	Gallamine blue	6,548	12,346
1040	Alizarin red SX	5,735	6,165
	Omega chrome brown	5,210	5,941
1032	Alizarin claret red RL	5,000	500
1085	Alizarin blue black B	4,884	10,477
	Naphthochrome violet R	4,848	6,612
722	Eriochrome cyanine RC	4,410	11,024
	Eriochromal brown	3,637	6,174
	Acid alizarin gray G	3,550	5,150
	DIRECT DYES		
	Rapid fast red	38,000	37,520
	Benzo fast brown	33,611	42,832
	Diamine (Direct) azo green 3G	27,918	9,990
	Diazo brilliant green 3G	27,646	10,550
	Diazo sky blue	24,890	22,480
	Chlorantine fast violet	24,354	29,865
	Setacyl direct blue	19,514	19,166
	Benzo fast gray	17,840	9,750
561	Trisulphon brown B conc.	17,646	54,967
	Diazo brown	16,426	12,218
	Viscolan black B conc	16,302	21,252
	Chlorantine fast brown	15,978	20,937
	Chlorantine fast green B	15,648	26,449
	Benzo fast yellow RL	15,150	18,013
	Brilliant sky blue	14,051	16,280
	Diamine fast orange	13,579	21,837
	Rapid fast scarlet LH	11,400	100
326	Benzo fast orange	11,300	8,945
710	Brilliant sky blue	10,913	10,962
	Diazo fast blue	10,796	5,621
	BASIC DYES		
681	Crystal violet	30,060	29,975
	Rhodamine 6 G D N, 6GH [2]	25,865	59,010
729	Victoria pure blue BO	19,965	40,299
749	Rhodamine B [2]	14,970	41,760
797	Patent phosphine	12,125	15,415
924	Methylene green W	10,714	12,337
793	Phosphine	9,370	27,764
134	Black JI (Janus black)	8,150	3,200
677	Magenta	8,150	14,775
815	Thioflavine T	7,860	18,080
706	Methyl Lyons blue	7,665	10,070
	Leather brown	7,125	3,525
658	Rhoduline blue 6G	6,253	8,666
913	Danubia blue BX	4,380	5,520
682	Ethyl violet	3,600	6,000
	SULFUR DYES		
	Indocarbon	28,975	54,639
	Pyrogene pure blue	11,021	25,787
	Thionol brown	4,578	4,479
	Katigen chrome blue 5G	3,500	4,000
	COLOR-LAKE AND SPIRIT-SOLUBLE DYES		
	Helio fast pink	62,250	66,500
	Helio fast rubine	35,100	32,495
	Helio Bordeaux BL	12,483	19,955
	Hansa yellow	11,300	23,129
	Sudan black	7,750	7,050

[2] Single strength basis.
[3] Includes vat yellow 5 GK (13,800 lbs. imported in 1930).

TABLE 29.—*Coal-tar medicinals and pharmaceuticals: Imports into the United States, 1930*

Name	Quantity	Name	Quantity
	Pounds		*Pounds*
Amarine	7.5	o-Hydroxyquinoline	149
Amino hydroxy arsinic acid	882	Iodohydroxyquinoline sodium sulfonate	169
p-Aminobenzoyldiethylaminoethanol hydrochloride	1,150	Iodohydroxyquinoline sulphonic acid (Quinoxyl)	18
Aminophenyl salicylate	1,102	Isobutyl-o-cresoliodide	19
Aminopyrine crystals	4,186	Leucotropine	[2] 500
Antifebrin	1	Mercury chlorophenolbarbituric acid	22
Antipyrine	52,589	Mercury-salicyl-allyl-amino-o-acetate sodium salt	22
Arsphenamine	[1] 150	6-Methyl-2-phenyl-quinoline-4-carboxylic acid ethyl ester	220
Benzoic acid USPX	100	Monomethylaminoacetopyrocatechol hydrochloride	13
Bismuth salicylate	500	b-Naphthol benzoate	64
Bismuth subsalicylate	33	b-Naphthol compound	33.5
Bismuth tribromphenate	150	Neoarsphenamine	16
Butylhydroxycinchoninic acid diethylethylenediamide	13	Neocaine	51
Butylhydroxycinchoninic acid diethylethylenediamide hydrochloride	57	Neosilverarsphenamine	2
Camphro salyl	98	Neovertin	4
Chinoplasmin	8.5	Neumol	60
Chinosol tablets	220	Phenylcinchoninic ester	144
Cyclohexenylethylcyanacetic acid ethyl ester	1,323	Plasmochin compound	2
Diethylaminoethylester-2-methoxy-6-allyl-phenol	0.5	Potassium sulphoguaiacolate	2,425
Diethylaminoethylester-2-methoxy-6-allyl-phenol-hydrochloride	6	Protocatechuic acid	1.5
Diethylaminoisopentyl-8-amino-6-methoxyquinoline	44	Pyrocatechine crystals	111
Elbon tablets	11	Resorcinol, medicinal	1,200
2-Ethoxy-6-9-diaminoacridine	55	Rhodine	2.5
2-Ethoxy-6-9-diaminoacridine hydrochloride	55	Rhofeine	2.5
2-Ethoxy-6-9-diaminoacridine lactate	2	Salicylic acid methylhydroxymethyl ester	55
Euphtalmine hydrochloride	2	Sodium salicylate	734
Fluorescein	5	Sodium stovarsol	0.5
Formaldehyde compound	157	Sulfarsenol	[2] 100
Guaiacol cacodylate	1	Tetraiodopyrrol	6
Hexamethylenetetramine sulfosalicylate	13	Triketohydrindene hydrate	0.5
Homatropine hydrobromide	2	Vioform powder	66
Homatropine hydrochloride	0.5	Zinc sulfanilate	140
4-Hydroxy-3-nitro phenyl arsenic acid	22	Total:	
		Quantity	68,549
		Value	$119,044

[1] Grams.
[2] Ampoules.

TABLE 30.—*Synthetic aromatic chemicals of coal-tar origin: Imports into the United States, 1930*

Name	Quantity	Name	Quantity
	Pounds		*Pounds*
Acetophenone	122	Methyl acetophenone	215
Aldehydine	4.5	p-Methyl acetophenone	28
Ambrene	1	Methyl anthranilate	6,949
Ambrogene	9,950	Methyl benzoate	10
Amyl benzoate	8	Methyl cinnamate	1,946
Amyl cinnamic aldehyde	828	Methyl-p-cresol	126
Amyl salicylate	973	Methyl methyl anthranilate	138
Anisic aldehyde	2,011	p-Methyl methyl salicylate	7
Benzaldehyde, f. f. c	3,968	Methyl naphthyl ketone	457
Benzoic acid	200	Methylphenyl acetate	93
Benzophenone	376	Methylphenyl alcohol	6
Benzyl acetate	6,228.5	Methylphenyl carbinol and salts	15
Benzyl alcohol	2,256	Moskene	101
Benzyl benzoate	2,845	Muguet I	15
Benzyl butyrate	15	Musk	78
Benzyl cinnamate	16	Musk ambrette	17.5
Benzyl formate	92	Musk ambrette residue	132
Benzyl isoeugenol	112.5	Musk ketone	19.5
Benzyl propionate	65	Musk omega	150
Benzyl salicylate	268	Nerolin	1,981
Benzylidine acetone	33	Neronia	100
Bromstyrol	1,065	Phenyl acetate	5.5
Butyl alcohol	212	Phenyl benzoate	10
Butyl xylene	19,136	Phenyl oxide	95
Centaurea crystals	10	Phenylacetic acid	638
Cinnamic acid methyl ester	300	Phenylacetic acid ethyl ether	50
Cinnamic alcohol	377	Phenylacetic acid methyl ester	200
Cinnamic aldehyde	1,545	Phenylacetic aldehyde	1,628
Coumarin	6,327	Phenylethyl alcohol	13,494
p-Cresol methyl ester	50	Phenylethyl butyrate	10
p-Cresol phenylacetate	5	Phenylethyl dimethyl carbinol	0.5
p-Cresotinic acid methylester	4.5	Phenylethyl formate	8
Cyclamal	115	Phenylethyl methylethyl carbinol	2
Diethyl phthalate	1,500	Phenylethyl phenyl acetate	15
Dimethylbenzylcarbinol	13	Phenylethyl salicylate	17.5
Dimethylhydroquinone	102	Phenylethyl valerianate	15
Dimethylresorcine	10	Phenylglycol methylene acetal	10
Diphenyl methane	122	Phenylglycol valerianate	2
Diphenyl oxide	333	Phenylpropyl acetate	25
Ethyl anthranilate	19	Phenylpropyl alcohol	75
Ethyl benzyl acetyl acetate	5	Phenylpropyl aldehyde	35
Ethyl cinnamate	126	Rhodinol I	220
Ethyl-p-cresol	25	Rhodinol acetate	55
Ethyl phenylacetate	55	Rosacetol	25
Ethyl vanillin	2,087	Rosefolia	10
Flosal	320	Skatol	1
Floxine	35	Styrallyl acetate	4
Heliotropine	1,553	Vanillin	27,674
Hydrocinnamic aldehyde	5	Vertena D	99
Indol	343.5	Ylang ylang	55
Isobutyl phenyl acetate	14	All other	61
Isobutyl phenyl propionate	7		
Isobutyl salicylate	5	Total:	
Jacinthe	15	Quantity	123,476
Jasmenol	7	Value	$183,564
Jasmine aldehyde	132		

TABLE 31.—*Photographic chemicals, intermediates, and other coal-tar products: Imports into the United States, 1930*

Name	Quantity	Name	Quantity
	Pounds		*Pounds*
Acenaphthene	55	Antinonnin	50
Acetic acid compound (sulfureted-chlorotolyl acid amide)	12,500	Aurantine	10
		Benzaldehyde, tech	14,220
Acetic acid compound (sulfureted phenetole carbonic acid amide)	19,210	Benzanthrone sulphide	4,873
		Benzoquinone	5,807
b-Aminoanthraquinone	17	Benzoyl peroxide	114
Aminoazobenzene	5,072	Benzoylamino-5-chloroanthraquinone	5,461
o-Aminoazotoluene	2,500	p-Bromo-a-monomethylaminoanthra-quinone	17,265
Aminobenzoyl J acid	1,102		
p-Anisidine	1,658	Carbazol	99
Anisidine hydrochloride	18,770	Carbonal	134
Anone	2,249	Chloroaminophenolsulphonic acid	8,489
Anthranilic acid	200	4-Chloro-2-anisidine	2,948

TABLE 31.—*Photographic chemicals, intermediates, and other coal-tar products: Imports into the United States, 1930*—Continued

Name	Quantity	Name	Quantity
	Pounds		*Pounds*
b-Chloroanthraquinone	24,888	Katanol ON	1,050
o-Chlorobenzaldehyde	450	Katanol W	39,900
p-Chloro-m-cresol	9,154	Katanol WL	1,896
4-Chloro-2-nitroaniline	8,158	Kollamin	2,305
o-Chloro-p-nitroaniline	1,212	Laventine KB	2,000
o-Chlorotoluene	2,881	Leather finishes, misc	495
Chloroxylil-thioglycolic acid	4,644	Leonil S	71,850
Coal-tar products, similar to naphthalene, diluted with ethylene oxide	4,961	Ludigol	6,375
Cresidine	2,526	Mercerol	6,000
Cresol	16,788	Methyl-p-aminophenol	6,400
m-Cresol	20,561	Methylcyclohexanon	22,623
o-Cresol	79,598	Methyldiphenylamine	546
p-Cresol	51	Methyl-p-hydroxybenzoate	155
p-Cresol acetate	29	Methylphenyl-a-naphthylamine	1,000
m-Cresotinic acid	100	Monomethyl-p-aminophenol sulfate	10,990
Cresylic acid	863,652	Mononitronaphthalene crystals	2,205
Cyclohexane	121	Naphthol AS	1,760
Cycloran M	1,190	Naphthol AS-BG	1,125
Diamino-1-1-dianthrimid	4,765	Naphthol AS-BO	990
Diaminophenol hydrochloride	585	Naphthol AS-BS	450
Diazo compound	993	Naphthol AS-D	3,080
Dibenzoylamino-1-1-dianthrimid	4,242	Naphthol AS-E	900
Dichlorobenzaldehyde	55	Naphthol AS-G	6,650
Diiodo fluorescein-sodium	1.5	Naphthol AS-OL	1,300
Dinaphthyl-dicarbonic acid	5,448	Naphthol AS-RL	220
Diphenyl black base I	20,800	Naphthol AS-SW	1,650
Diphenylamine crystals	10	Naphthol AS-TR	3,050
Dissolving salt B new	30,521	a-Naphthol	8,669
Ethyl-b-naphthylamine	400	b-Naphthol monosulfonic acid F	2,000
Fast black LB base	2,900	1:5-Naphthol sulfonic acid	3,356
Fast black salt B	27,200	a-Naphthylamine sulfaminic acid	3,565
Fast black salt K	6,500	Naphthylamine-sulfonic acid	4,250
Fast black salt L	2,300	o-Nitroaniline	100
Fast blue BB base	75	p-Nitroaniline	991
Fast blue salt BB	8,100	p-Nitro-o-anisidine	2,152
Fast blue salt RR	250	4-Nitro-2-anisidine hydrochloride	8,684
Fast Bordeaux salt GP	19,350	Nitrophenol	2
Fast corinth salt V	225	m-Nitro-p-toluidine	717
Fast garnet GBC base	475	Paratol, refined	3,500
Fast garnet GC base	600	o-Phenetidine	2,531
Fast orange GC base	475	Phenol	1,013
Fast orange salt GC	18,720	Phenyl gamma acid	922
Fast orange salt GR	3,900	p-Phenylenediamine	5
Fast red KB base	10,371	Phenylhydrazine	25
Fast red RBE base	400	Phenylmethyl pyrazolon	7,450
Fast red RL base	3,200	Phloroglucinol	114
Fast red TR base	2,300	Photograghic developers, misc	216
Fast red salt AL	3,900	Phthalic acid	220
Fast red salt B	22,675	Pinakryptol green	2
Fast red salt GG	275	Piperidine, tech	4,636
Fast red salt RC	1,050	Resins, synthetic	21,404
Fast red salt RL	700	Resorcinol, tech	71,218
Fast red salt TR	4,050	Rodinal	3,701
Fast scarlet TR base	100	Scleroveine	25
Fast scarlet salt GG	8,400	Sensitizers, misc	372
Fast scarlet salt R	3,630	Sericosol A	75
Fast violet B base	325	Setamol WS	1,825
Fast violet salt B	2,250	Soap base and acid soap	355
Fast yellow salt GC	3,450	o-Sulfanilic acid	2,052
Feltron C	1,450	Tanesco	2,645
Fixing agent	55	Tar acids, high boiling	27,274
Fur developer EG	150	Tetrachlorophthalic acid	441
Glycin	400	Tolidine disulfonic acid	26
Hertolan	231	Toluidine sulfanilid	4,259
Hydroquinone	5	p-Toluylenediamine solution	80
Hydroxybenzoic acid ester and chlorinated phenols	331	Tricresol	100
p-Hydroxybenzoic acid methylester, tech	331	Tricresylphosphate	441
Hygrolit	261	Triphenylphosphate	2,608
Indaphor A	500	Variamine blue salt B	9,600
Ink powder	228	All other	548
Irgatan	80,060		
Katanol O	5,050	Total:	
		Quantity	1,879,919
		Value	$566,842

PART IV

CENSUS OF SYNTHETIC ORGANIC CHEMICALS NOT DERIVED FROM COAL TAR, 1930

Part IV

CENSUS OF SYNTHETIC ORGANIC CHEMICALS NOT DERIVED FROM COAL TAR

Introduction

This section is a continuation of the annual survey of synthetic organic chemicals not of coal-tar origin, commenced by the Tariff Commission in 1921. The Bureau of the Census publishes biennially production data on the more important aliphatic chemicals; the Tariff Commission compiles statistics on such products only when the importance of the commodity or conditions in the industry warrants a survey of this branch of the industry.

The following compounds are excluded from this compilation: (1) Aliphatic compounds derived from natural sources by isolation, distillation, extraction, hydrolysis, or purification, such as alkaloids, essential oils from natural sources, sugars, and stearic acid; (2) cyanides, cyanamids, or carbides of metals or of inorganic radicals; (3) products obtained from other sources.

The production in 1930 of 609,363,028 pounds of synthetic organic chemicals other than those of coal-tar origin is a decrease of 3.8 per cent from the output in 1929. Sales were 436,888,399 pounds, valued at $65,991,951, an increase over 1929 of 7.8 per cent by weight and of 1.3 per cent by value, with a unit value decline from $0.161 in 1929 to $0.151 in 1930.

These general data are of little significance because the classification "synthetic organic chemicals other than those of coal-tar origin" includes many dissimilar and unrelated compounds and groups of compounds, production and sales of which did not increase or decrease uniformly in 1930. A more accurate picture of the industry may therefore be obtained by considering separately some of the more important compounds and groups of compounds.

Principal Compounds Produced in 1930

Derivatives of ethylene, propylene, and butylene

Derivatives of ethylene, propylene, and butylene from constituents of natural gas and from gases formed in the cracking of petroleum comprise a distinct group of synthetic organic compounds. Production of this group decreased about 30 per cent in 1930 as compared with 1929, and sales increased approximately 28 per cent by quantity and 30 per cent by value. This decrease was apparently due to liquidation of excess stocks produced in 1929, and to restricted manufacture of compounds used as raw materials for other products but not sold as such.

Of these compounds, those produced from ethylene are of the greatest commercial importance, although commercial production for

the first time in 1930 of propylene dichloride, propylene glycol, and propylene oxide, indicates a growing consumption of the propylene derivatives.

DERIVATIVES OF ACETYLENE

Acetylene, generated from calcium carbide, is the basic raw material for another distinct group of organic chemicals. Notable among these is acetaldehyde, consumed in large quantities in the manufacture of acetic acid and rubber accelerators. Its output in 1930 declined about 20 per cent as compared with the previous year.

The bulk of synthetic acetic acid is made from acetaldehyde. Production in 1930 was about the same as in 1929, but the unit value of sales decreased about 17 per cent. In 1930 less acetic acid was used in the manufacture of lacquer solvents than in 1929 and more was consumed in the cellulose acetate industry.

SOLVENTS FOR LACQUERS

Because of a decreased consumption of lacquers by the automobile industry the output of lacquer solvents declined more than 15 per cent in 1930 as compared with 1929. Sales showed a corresponding decrease by quantity and a decrease of almost 25 per cent by value. The principal solvents in this group are butyl and amyl acetates, butyl and amyl alcohols, and ethyl acetate. Publishable figures of production and sales appear in Table 33, page 84.

METHANOL

In 1930, the output of 48,930,545 pounds of synthetic methanol exceeded for the first time the amount made by the distillation of wood, and was more than 50 per cent in excess of production in 1929. The unit value of sales declined about 20 per cent.

FORMALDEHYDE AND HEXAMETHYLENETETRAMINE

Production of each of these compounds decreased about 20 per cent in 1930. Formaldehyde, made by the oxidation of methyl alcohol, is used in the manufacture of synthetic resins, as a disinfectant, and in the manufacture of dyes. Hexamethylenetetramine, manufactured from formaldehyde and ammonia, is used as a raw material for synthetic resins, in medicine, and as a dye intermediate.

SYNTHETIC ETHYL ALCOHOL

A development of primary importance in 1930 was the commercial production of ethyl alcohol by synthesis from ethylene. It is believed that improvements in manufacturing technique with resulting decreases in production costs will make this product a factor to be reckoned with in the alcohol industry.

HIGHER ALCOHOLS BY HIGH-PRESSURE SYNTHESIS

Commercial production of higher alcohols by high-pressure synthesis was also reported for the first time in 1930. A mixture of butyl and amyl alcohols, small amounts of normal propyl alcohol,

and of alcohols containing more than five carbon atoms, is made from water gas, as is methanol. This development is a distinct advance in technique of high-pressure synthesis. Such alcohols will probably compete with those made by fermentation and from natural gas, as raw materials for solvent production and also directly as lacquer solvents.

ACETONE

Acetone is produced jointly with butyl alcohol by the controlled fermentation of corn. Its production by synthesis from propylene derived from natural gas was reported for the first time in 1930, and the total output from all sources was about 20 per cent below that in 1929. Sales also declined, but to a less extent, and the unit value of sales dropped about 23 per cent.

ETHYL ETHER

The combined output of the USP and technical grades of ethyl ether increased approximately 30 per cent in 1930 as compared with 1929. Initial production by synthesis from ethylene was reported in 1930.

ETHYL CHLORIDE AND TETRAETHYL LEAD

Ethyl chloride, the raw material for tetraethyl lead, increased in production about 85 per cent in 1930 as compared with 1929, and the production of tetraethyl lead, used as an antiknock agent in motor fuels, more than doubled in the same year. Marked increases in 1930 were reported for both imports and production of ethylene dibromide, another raw material for tetraethyl lead.

METHYL CHLORIDE AND NEW REFRIGERANTS

Methyl chloride, an important organic refrigerant, again showed an increase in production of about 35 per cent. New refrigerants, produced for the first time in 1930, are: Dichloro-difluoro-methane and dichloro-monofluoro-methane. It is reported that dichloro-tetrafluoro-ethane will be made for refrigerating use in 1931.

CITRIC ACID AND CITRATE OF LIME

Citric acid, produced by controlled fermentation of sugar, supplies a substantial part of domestic consumption, and with that made from cull lemons in California, renders the United States independent of the Italian monopoly in both raw material and the finished product. The output of citric acid by the fermentation method in this and in certain European countries is reported to have been a contributing factor to the severe depression experienced by the Italian industry in 1930.

Although the output of synthetic citrate of lime, an intermediate product in the manufacture of citric acid, decreased slightly in 1930, production of the synthetic acid showed a substantial increase. This, however, was in part due to the inclusion for the first time of the output of several producers who buy fermentation citrate of lime.

DIETHYL BARBITURIC ACID AND DERIVATIVES

Derivatives of barbituric acid are used extensively in medicine as nonnarcotic nerve sedatives and soporifics. In 1930, sales amounted to 18,932 pounds valued at $248,893, and showed a material increase, as did production.

SYNTHETIC RESINS

Production of synthetic resins not of coal-tar origin, consisting mostly of the vinyl, urea, and thiourea types, increased more than 10 per cent in 1930 as compared with 1929. The growing importance of the noncoal-tar group of resins is emphasized when contrasted with the decrease in coal-tar synthetic resins discussed on page 49 of Part II, infra.

XANTHATES

Used primarily as flotation agents in ore refining, the production of xanthates in 1930 declined about 25 per cent as compared with 1929.

Increases in Production

Among the products not already mentioned showing increased production in 1930, as compared with 1929, are: Aldehyde ammonia, bromodiethylacetylcarbamide, synthetic caffeine, chloral hydrate, citronellol, diethylene glycol, ethylene dibromide, formic acid, heptaldehyde, isopropyl alcohol, pyrogallic acid, and triethanolamine.

Decreases in Production

Among the compounds not previously mentioned showing decreased production in 1930, as compared with 1929, are: Amyl propionate, butyl propionate, carbon tetrachloride, chloroacetic acid, chloroform, dimethyl sulfate, ethylene oxide, ethyl lactate, ethyl mercury chloride, ethyl oxalate, furfural, gallic acid, glycerophosphoric acid and salts, lactic acid, oxalic acid, propionic acid, s-tetrachloroethane, and trichloroethylene.

New Products

Compounds, other than those mentioned above, reported in 1930 but not in 1929, are: Amyl valerate, butyl butyrate, butyl ethyl malonic acid, camphor, diethanolamine, furfural acetone, isoamyl acetate, tetrachloroethylene, trihydroxyethylamine stearate and trihydroxyethylamine linoleate.

Statistics of Production, Sales, and Imports

Table 32, page 83, shows production and imports of certain synthetic organic chemicals not of coal-tar origin, 1929 and 1930. Table 33, page 84, shows production and sales of these chemicals in 1930.

TABLE 32.—*Certain synthetic organic chemicals of noncoal-tar origin: Imports and production*

	1928			1929			1930		
	Imports [1]		Production [2]	Imports [1]		Production [2]	Imports [1]		Production [2]
	Quantity	Value		Quantity	Value		Quantity	Value	
	Pounds		*Pounds*	*Pounds*		*Pounds*	*Pounds*		*Pounds*
Acetaldehyde	4,472	$803	[3]	10,770	$1,622	[3]	170	116	[3]
Paracetaldehyde	19,587	3,216	[3]	40,853	7,319	[3]	19,881	3,374	[3]
Formaldehyde, solution	4,188	194	38,717,732			51,786,422			40,763,470
Hexamethylenetetramine	5,898	1,643	1,661,645	5,562	1,857	2,368,020			1,871,690
Acetic or pyroligneous acid, containing by weight—									
Not more than 65 per cent acetic acid	12,163,499	644,816	[3]	21,410,253	1,289,002	[3]	12,069,687	586,873	
More than 65 per cent acetic acid	6,058,077	728,739	[3]	7,824,521	727,847	[3]	10,307,317	911,541	
Formic acid	2,250,090	174,246	[3]	1,386,608	108,797	[3]	509,966	36,598	[3]
Gallic acid			432,571			458,389			380,034
Lactic acid, containing by weight 55 per cent or more of lactic acid	282,598	88,438	[3]	322,110	89,115	[3]	431,802	121,574	[3]
Oxalic acid	[4] 890,203	[4] 46,447	[3]	1,346,053	71,193	[3]	574,184	30,731	[3]
Pyrogallic acid			142,335	12	33	134,994	100	104	143,408
Butyl alcohol	[5] 39,903	[5] 7,957	[6] 49,860,798	5,045	1,127	[7] 67,500,000	88,712	7,785	
Methanol	[8] 379,291	129,339	[3]	[9] 538,427	214,667	[3]	16,716	6,200	48,930,545
Carbon tetrachloride			19,764,908	20	7	34,719,934	16,217	910	34,298,036
Chloroform	51	72	[3]	30	35	2,767,301	[10] 11,830	5,915	2,469,969
Diethylbarbituric acid				30,874	[11] 248,986	[3]	19,234	[11] 147,729	[3]
Glycerophosphoric acid, and salts and compounds	28,550	43,726	[3]	25,779	46,532	[3]	7,044	5,723	[3]
Ethers and esters, containing not more than 10 per cent alcohol—									
Ethyl ether USP			5,933,297	2,262	320	6,147,393	4,430	792	8,698,583
Butyl acetate	5,347,902	701,827	30,029,505	7,824,234	981,953	38,780,656	374,939	47,552	35,455,752
Amyl acetate	539	211	4,290,117	300	82	5,832,145	293	106	4,416,940
Ethyl acetate			58,578,026	74	73	73,895,640	1,581	188	69,669,995
Other, n. s. p. f	678,911	113,935		85,314	33,673		131,129	45,071	
Tetrachloroethane	46,862	2,544	[3]	99,708	4,387	[3]	55,706	2,131	[3]
Trichloroethylene	154,358	9,382	[3]	223,653	11,183		292,363	15,763	[3]
Thymol	17,636	29,928		22,541	36,935		17,699	25,741	
Urea	1,788,927	101,900		4,588,583	228,401		[12] 2,459,140 [13] 17,843,840	120,263 719,982	
Tetrachlorocthylene							[14] 51,263	4,491	
Iron ammonium oxalate and iron sodium oxalate							[14] 46,314	8,006	
Ethylene dibromide	283,205	86,966	[3]	443,004	104,917	[3]	3,023,484	648,455	[3]
Sodium oxalate							[14] 61,368	4,278	
Synthetic gums and resins, n. s. p. f							[14] 755	345	

[1] Foreign Commerce and Navigation of the United States.
[2] Census of Dyes and Other Synthetic Organic Chemicals.
[3] Not publishable.
[4] T. D. 40604.
[5] T. D. 37577.
[6] Wall Street Journal, Apr. 8, 1929.
[7] Production of Commercial Solvents Corporation, Wall Street Journal, June 13, 1930.
[8] Gallons, T. D. 41892.
[9] Gallons.
[10] Free from Virgin Islands.
[11] Based on the American selling price.
[12] Jan. 1–June 17, dutiable.
[13] June 18–Dec. 31, free.
[14] June 18–Dec. 31, not separately reported previously.

TABLE 33.—*Synthetic organic chemicals of noncoal-tar origin: Production and sales, 1930*

[The numbers in the second column refer to the numbered alphabetical list of manufacturers printed on p. 109. An X indicates that the manufacturer did not consent to the publication of his name in connection with the particular product. A blank in the third and fourth columns indicates that these sales can not be published without revealing information in regard to the sales of individual firms. A blank in the sixth column indicates that the production can not be published without revealing information in regard to the output of individual firms. The details thus withheld are, however, included in the totals]

Name of chemical	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
Total		*Pounds* 436, 888, 399	$65, 991, 951	$0. 15	*Pounds* 609, 363, 028
Acetaldehyde	110, 126, 127, X				
Acetaldol (aldol)	110				
Acetamide	10				
Acetannin (tannigen)	19				
Acetic acid (100 per cent)	110, 143, X				
Acetone	32, X, X				
Acetylbromodiethylacetylcarbamide	19				
Alcohols containing more than 5 carbon atoms.	47				
Aldehyde ammonia	126				
Amyl acetate and sec amyl acetate	48, 56, 59 ,84, 113, 140, 143, 146, X, X, X, X.	3, 520, 616	726, 615	. 21	4, 416, 940
Amyl alcohol and sec amyl alcohol	59 84, 143, 146, X, X, X.				
Amyl butyrate	27, 59				
Amyl nitrite	92				
Amyl oenanthate	56				
Amyl propionate	X				
Amyl valerate	59				
Anethol	54, 56				
Anisic aldehyde (aubepine)	56, 60, X				
Barbituric acid derivatives		18, 932	248, 893	13. 17	
Butylethylbarbituric acid (neonal).	1				
Diethylbarbituric acid (veronal)	1, 19, 98				
Ethylisoamylbarbituric acid (amytal).	89				
Ethylisopropylbarbituric acid	X				
Ethylisopropylbarbituric acid, calcium salt.	X				
Ethylisomethylbutylbarbituric acid.	1				
Bromocamphor	46, 92				
Bromo acid. (*See* diethylbromoacetyl bromide).					
Bromodiethylacetylcarbamide	19				
Butyl acetate (n and sec)	48, 59, 84, 116, 143, 146, 152, X, X, X, X, X.	28, 629, 580	4, 917, 287	. 17	35, 455, 752
Butyl alcohol (n, sec., and tertiary) (butanol).	X, X, X, X, X				
Butyl aldehyde	X				
Butyl aldehyde amines	48				
Butyl butyrate	59, 152				
Butyl ethyl malonic acid	1				
Butyl furoate	125				
Butyl propionate	59, 84, 152				
Butyl xanthic disulfide	X				
n-Butyric acid	56, 61, 113, 152				
Caffeine	96, 101				
Camphor	22				
d-Camphoric acid	92				
n-Caproic acid	61, 92, 113, 119				
Capryl alcohol. (*See* sec octyl alcohol).					
Carbon bisulfide on methylene di piperidine.	127				
Carbon tetrachloride	46, 111, X	29, 692, 011	1, 653, 974	. 06	34, 298, 036
Chaulmoogric ester	19				
Chloral hydrate	98, 101				
Chloroacetic acid (mono)	46				
Chloroarsenobehenolate of strontium.	19				
Chloroform, USP and tech	26, 46, 126, X	1, 799, 735	321, 528	. 18	2, 469, 969
Citral	27, 54, 56, 64, 140, 144, X, X.	6, 569	12, 543	1. 91	9, 284

TABLE 33.—*Synthetic organic chemicals of noncoal-tar origin: Production and sales, 1930*—Continued

Name of chemical	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
		Pounds			*Pounds*
Citrate of lime	X				
Citric acid (fermentation)	37, 98, 144, X				
Citronellol	56, 61, X, X				
Citronellyl acetate	54, 56				
Crotonaldehyde	110, 127				
Cyanacetic acid sodium salt	19				
Decyl alcohol	56				
Decyl aldehyde	56				
Dibromobehenate of calcium	19				
Dibromomalonylurea (dibromin)	X				
n-Dibutylamine	48				
Dichloroethyl ether	32				
Dichloromonofluromethane	X				
Dichlorodifluoromethane	X				
Dicthanolamine	32				
Diethylacetic acid	19				
Diethylbromoacetyl bromide (bromo acid).	19				
Diethylene glycol	32				
Diethylene glycol monobutyl ether	32				
Diethylene glycol monoethyl ether	32				
Diethylene oxide (dioxan)	32				
Diethyl malonate (malonic ester)	1, 19				
Diethyl sulfate	32				
Dihydroxy citronellic ketone	56				
Dihydrovanillone	56				
Dimethylglyoxime	10				
Dimethyl sulfate	X				
1:3-Dimethylxanthin sodium acetate	19				
Duodecyl alcohol and aldehyde	56				
Erucic acid	19				
Ethoxyacetic acid	19				
Ethyl acetoacetate	X				
Ethyl acetate (85 per cent)	48, 56, 57, 59, 116, 143, 146, X, X, X.	48,672,079	$4,828,111	$0.10	69,669,995
Ethyl alcohol	32				
Ethyl bromide	1, 19, 46				
Ethyl butyrate	27, 54, 56, 59, 61, 113, X.				
Ethyl carbonate	X				
Ethyl chloride	46, 48, 59, 60, 62, 92, 126.				
Ethyl chlorocarbonate	X				
Ethylene chlorohydrin	32				
Ethylene dibromide	30, 46				
Ethylene dichloride	32, 46				
Ethylene glycol	32				
Ethylene glycol monobutyl ether	32				
Ethylene glycol monoethyl ether	32				
Ethylene glycol monoethyl ether acetate.	32, 59				
Ethylene glycol monomethyl ether	32				
Ethylene oxide	32				
Ethyl ether, USP and tech	11, 32, 48, 92, 98, 134, 143, X.	5,636,127	1,516,220	.27	8,698,583
Ethyl formate	54, 56, 59, 61, 92, 113, X.				
Ethyl furoate	125				
Ethyl glycolic acid ester of menthol	19				
Ethylhydroxy butyrate	X				
Ethyl iodide	92, 98				
Ethyl isomethyl butyl malonate	1				
Ethyl isovalerate	54, 56, 61, 113, X	397	773	1.95	285
Ethyl lactate	56, X				
Ethyl laurate	56				
Ethyl malonate (mono)	1, 56, 140				
Ethyl mercury chloride	48, 59				
Ethyl nitrite	92, 98				
Ethyl oenanthate	54, 56, 61, 113, X				
Ethyl oleate	56				
Ethyl oxalate	X				
Ethyl pelargonate	27, 56, 140				
Ethyl propionate	56, X, X				
Ethyl n-valerate	56, 59				
Formaldehyde (40 per cent)	44, 72, 126, X				40,763,470
Formic acid (90 per cent)	148, X				

TABLE 33.—*Synthetic organic chemicals of noncoal-tar origin: Production and sales, 1930*—Continued

Name of chemical	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
		Pounds			*Pounds*
Furac II (zinc dithiofuroate)	125				
Furac III (lead dithiofuroate)	125				
Furacrylic acid	125				
Furacrylate sodium	125				
Furan	125				
Furfural	125				
Furfural acetone	125				
Furfuryl acetate	125				
Furfuryl alcohol	125				
Furil	125				
Furoic acid	125				
Gallic acid, USP and tech	52, 92, 156				380,034
Geranyl acetate	54, 56, 61, 140, 144				
Geranyl butyrate	54, 56, 61				
Geranyl formate	54, 56, 61				
Geranyl propionate	56				
Glycerol diacetate (diacetin)	60, 143				
Glycerophosphoric acid and salts of	72, 101				
Guanidine	X				
Heliotropin	60, 64				
Heptadecyl aldehyde	56				
Heptaldehyde	61, X				
n-Heptylic acid	92				
Hexachloroethane	46				
Hexadecyl aldehyde	56				
Hexamethylenetetramine	72, 126, 127, X				1,871,690
Hexamethylenetetramineanhydromethylene citrate.	19				
Hydrofuramide	125				
Hydroxylamine hydrochloride	10				
Iodobehenate of calcium	19				
Iodobehenate of iron, basic	19				
Iodobehenic acid	19				
Iodoform	92, 98, 109				
Ionone	64, 96, 140, 144, X	33,598	$119,127	$3.55	31,729
Isoamyl acetate	54, X				
Isoamyl butyrate	54, 113, X				
Isoamyl formate	54, 113				
Isoamyl isovalerate	54, 113, X				
Isobutyl acetate	54, 113				
Isobutyl and amyl alcohol	47				
Isobutyl aldehyde	56				
Isobutyl butyrate	56, 113				
Isobutyl formate	56				
Isobutyl propionate	113				
Iso-caproic acid	119				
Isoeugenol	54, 56, 64, 144				
Isomenthol (synthetic menthol)	109				
Isomethylbutyl bromide	1				
Isopropyl acetate	32, X				
Isopropyl alcohol (isopropanol)	32, X, X				
Isopropyl bromide	X				
Isopropyl ether	32				
Isopropyl ethyl malonate	X				
Isovaleric acid	113, 152				
Jasmaldehyde	56				
Jasmone ketone	56				
Lactic acid (100 per cent)	14, X, X, X				
Linalyl acetate	54, 56, 140				
Linalyl butyrate	56				
Linalyl formate	54, 56, 140				
Linalyl propionate	56				
Malonic ester. (*See* diethylmalonate).					
Methanol, synthetic (methyl alcohol).	32, 47, X, X				48,930,545
Methyl acetate	143				
Methyl chloride	126				
Methylene citric acid	19				
Methyl eugenol	140				
Methyl furoate	125				
Methyl ionone	X				
Methyl isoeugenol	54				
Methylnonylacetic acid	56				
Monoethanolamine	32				
Nonyl alcohol	56				

TABLE 33.—*Synthetic organic chemicals of noncoal-tar origin: Production and sales, 1930*—Continued

Name of chemical	Manufacturers' identification numbers (according to list on p. 109)	Sales			Production (quantity)
		Quantity	Value	Average price per pound	
		Pounds			*Pounds*
Nonyl aldehyde	56				
Octodecyl aldehyde	56				
Octodecyl ketone	56				
sec-Octyl acetate	56				
n-Octyl alcohol	56				
sec-Octyl alcohol (capryl alcohol)	10, 56				
Octyl aldehyde	56				
Octyl butyrate	56				
Oxalacetic ether	X				
Oxalic acid	115, 148, X				
Paracetaldehyde	110				
Paraformaldehyde	72, 126				
Pentasol acetate	59				
Piperonone	56				
Propionic acid	152				
Propionaldehyde	56				
n-Propyl acetate	56				
n-Propyl alcohol (propanol)	47, 56				
Propylene chlorohydrin	32				
Propylene dichloride	32				
Propylene glycol	32				
Propylene oxide	32				
Protethyl	56				
Pyrogallol (pyrogallic acid)	52, 92, 156				143, 408
Pyruvic acid	1				
Research chemicals	10, 52				
Rhodinol	54, 56, 61, 64, 144, X, X, X.	4, 473	$46, 615	$10.42	5, 130
Rhodinyl acetate	54, 56, 140				
Sebacic acid	10				
Sodium bismuth thioglycollate (thiobismol).	X				
Sodium formate	47, 148				
Sodium succinate	129				
Succinic acid	92				
Succinic peroxide	X				
Synthetic resins (noncoal-tar)	32, 65, X, X				
Terpineol	64, 140, X				
Terpin hydrate	22				
Terpinyl acetate	54, 64, 140, X				
s-Tetrachloroethane	126				
Tetrachloroethylene	46				
Tetradecyl aldehyde	56				
Tetraethyl lead	48				
Tetrahydrofurfuryl alcohol	125				
Tetramethylthiouramsulfide	48, X				
Tetramethylthiouramdisulfide	155, X, X				
Triacetin	61, 84				
Tribromotertiarybutyl alcohol (brometone).	X				
Trichlorotertiarybutyl alcohol (chloretone).	X				
Trichlorobutyl alcohol (methaform)	X				
Trichloroethylene	126				
Triethanolamine	32				
Triethylene glycol	32				
Triethyltrimethylenetriamine	X				
Trihydroxyethylamine linoleate	65				
Trihydroxyethylamine stearate	65				
Trimethylene bromide	1				
n-Valeric acid	56, 152				
Vanillic acid	56				
Vanillyl vanillate	56				
Vinylacetate	32				
Vinylchloride	32				
Xanthates:					
Potassium amyl xanthate	68, 127				
Potassium butanol xanthate	68				
Potassium butyl xanthate	127				
Potassium ethyl xanthate	66, 68, 127				
Potassium pentasol xanthate	68				
Sodium ethyl xanthate	68, 127				
Zinc butyl xanthate	X, X				
Zinc dimethyldithiocarbamate	X				

PART V

INTERNATIONAL DYE TRADE

Part V

INTERNATIONAL DYE TRADE

Introduction

In previous issues of the Census of Dyes, trends in international dye trade during the pre-war years, through the war period, and through the post-war period were considered in detail. A discussion of the subject in somewhat condensed form is continued in this issue, but the text is abridged, and detailed statistical tables for individual nations are omitted.

No developments of outstanding importance occurred in international dye trade in 1930. During the world-wide economic depression trade in coal-tar chemicals declined, but to a less extent than did the trade in commodities in general.

World Production of Dyes

Germany, Switzerland, Great Britain, France, and the United States are the leading dye-producing nations. Italy and Japan are manufacturers on a smaller scale. Other nations making coal-tar dyes in limited quantities are Russia, Czechoslovakia, Holland, Poland, Spain, and Sweden. Germany and Switzerland had well-established dye industries before the World War. The industries in other countries are largely war and postwar developments. Production by quantity in 1930 as compared with 1929 decreased in the principal countries as follows: Germany, 6.6 per cent; the United States, 22 per cent; Great Britain, 24 per cent; Switzerland, 18 per cent; and France, 2.6 per cent.

Table 34 shows the production of dyes by the chief producing nations, 1926–1930, inclusive.

Table 34.—*Coal-tar dyes: Production by chief producing nations*

Country	1926	1927	1928	1929	1930
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*
Germany [1]	165, 000, 000	165, 000, 000	165, 000, 000	165, 300, 000	154, 300, 000
United States [2]	87, 979, 000	95, 200, 000	96, 625, 000	111, 422, 000	86, 480, 000
Great Britain [3]	30, 297, 000	39, 552, 000	50, 907, 000	55, 785, 000	42, 590, 000
Switzerland [4]	19, 200, 000	22, 500, 000	23, 857, 000	24, 347, 000	20, 039, 000
France [5]	34, 420, 000	30, 897, 000	34, 398, 000	36, 224, 000	35, 163, 000
Italy [6]	15, 428, 000	13, 621, 000	15, 211, 000	16, 314, 000	----------
Japan [7]	----------	16, 856, 000	18, 457, 000	17, 188, 000	----------

[1] The figures are estimated by U. S. Department of Commerce.
[2] Annual Census of Dyes and Other Synthetic Organic Chemicals, U. S. Tariff Commission.
[3] Estimates for 1926 were prepared by Dyestuffs Industry Development Committee from voluntary returns of British dye firms; 1927–1930 figures prepared by British Board of Trade.
[4] Calculated on basis that the home market consumes 10 per cent of the output of Swiss dyes; exports consequently equal 90 per cent of production.
[5] Official figures for 1926 from French-owned plants in France compiled by L' Union des producteurs et consommateurs pour le developpement de l'industrie des matiéres colorantes en France; 1927–1930 figures from U. S. Department of Commerce.
[6] U. S. Department of Commerce, World Trade Notes.
[7] Figures for 1927 from "Chemical Trade Journal," London, Mar. 28, 1930; as reported by the Japanese Ministry for Industry and Trade. Figures for 1928 and 1929 from H. B. Titus, Asst. U. S. Trade Commissioner, Tokio.

Competitive Conditions

The dye-producing nations enumerated are equipped to produce dyes far in excess of their home requirements, in consequence of which severe competition exists for foreign markets. Many of the producing nations have adopted special measures, such as subsidies, concessions, special privileges, and tariffs to protect their dye industries. The ease with which a dye plant may be converted to a munitions factory has been a factor in the development of a self-contained dye industry in several countries.

The struggle for markets is most noticeable in the nonproducing countries of the Far East, principally China and India. These nations consume vast quantities of the cheaper colors, such as Indigo and Sulfur black.

The intensity of international competition has been checked somewhat by the cartel formed by German, Swiss, and French producers. This international agreement was discussed fully in the 1928 and 1929 issues of the Census. The dye industry of the United States is not a party to any international combination.

Germany and Switzerland continued in 1930 to dominate international trade to the extent of supplying about 80 per cent by value of all dyes exported. This is about the same share of world exports held by these two countries in 1929, but a decrease of about 5 per cent from the share held in 1928. The downward trend of exports signifies that the United States, Great Britain, France, Italy, and Japan are more than retaining markets gained during the World War, prior to which they were largely controlled by Germany and Switzerland.

Official statistics of the dye trade of Germany and Switzerland do not present a complete picture of their international activities. The German I. G. either controls or has an interest in plants in the United States, Japan, Spain, Russia, and Italy. Swiss interests either own or have an interest in firms in the United States, France, Germany, Great Britain, Poland, and Italy. In addition to a substantial production these agencies handle products not of their own manufacture.

A significant feature of international dye trade in 1930 was the increase of more than 150 per cent in quantity of dyes exported from Japan. Geographical location gives the highly subsidized Japanese dye industry a distinct advantage in the markets of the Far East.

Exports From Producing Countries

Table 35 gives comparative statistics of exports of dyes from the chief producing nations for the pre-war year 1913 and for 1929 and 1930.

Exports from Germany, the principal shipper of dyes, were 3.4 per cent by quantity and 6.3 per cent by value less in 1930 than in the preceding year. Dyes exported in 1930 were only 38 per cent by quantity of exports in 1913, but, by value, constituted 88 per cent of the exports in 1913, indicating the universal trend towards the more expensive fast dyes and towards colors of greater concentration.

Switzerland exported 18 per cent less by quantity and 15 per cent less by value of dyes in 1930 than in 1929. The increase in the value per pound of exports, from 74 cents in 1929 to 76 cents in 1930

indicates a continuation of the trend towards specialization in the higher priced dyes. In 1913 the unit value of dyes exported by Switzerland was only 28 cents.

The export trade of the United States decreased 18 per cent by quantity and 15 per cent by value in 1930 as compared with 1929. The value per pound of exports increased from 21 cents in 1929 to 22 cents in 1930.

Exports from Great Britain in 1930 decreased 32 per cent by quantity and only 10 per cent by value, as compared with 1929.

France exported 28 per cent by quantity and 15 per cent by weight less in 1930 than in 1929.

Exports of dyes from Italy increased from 1,324,083 pounds, valued at $610,047 in 1929 to 1,690,928 pounds, valued at $703,630, in 1930.

Despite generally adverse trade conditions in 1930, Japan increased her exports of coal-tar dyes from 1,788,927 pounds, valued at $170,411 in 1929 to 4,598,733 pounds, valued at $406,664 in 1930. Most of the exports were to far eastern markets.

TABLE 35.—*Coal-tar dyes: Exports from chief producing countries* [1]

Exported from—	1913		1929		1930	
	Quantity	Value	Quantity	Value	Quantity	Value
	Pounds		*Pounds*		*Pounds*	
Germany	239, 598, 133	$51, 689, 400	94, 695, 507	$48, 518, 005	91, 458, 051	$45, 441, 414
United States			34, 130, 325	7, 279, 086	28, 267, 340	6, 245, 830
Great Britain	5, 451, 376	862, 566	17, 570, 112	4, 789, 716	11, 941, 328	4, 306, 726
Switzerland	19, 458, 902	5, 549, 752	21, 912, 538	16, 123, 693	18, 035, 048	13, 735, 288
France	1, 152, 134	275, 716	6, 662, 081	2, 194, 455	4, 818, 374	1, 856, 355
Italy	117, 725	22, 458	1, 324, 083	610, 047	1, 690, 928	703, 630
Japan			1, 788, 927	170, 411	4, 598, 733	406, 664

[1] From official statistics of each country.

INTERNATIONAL IMPORTS

Table 36 shows imports of dyes by principal consuming countries in 1913, 1929, and 1930. Official data for China for 1930 were not available at the time of the preparation of this report. However, representatives of the Department of Commerce estimate that imports of dyes into China in 1930 were about 85 per cent of normal. The United States is reported to have been successful in retaining its markets in China.

TABLE 36.—*Coal-tar dyes: Imports into the chief consuming countries*

Imported into—	1913		1929		1930	
	Quantity	Value	Quantity	Value	Quantity	Value
	Pounds		*Pounds*		*Pounds*	
China	[1] 60,696,533	$11,673,779	77,554,133	[2] $13,527,757		
British India	[3] 16,923,607	3,741,031	18,175,592	6,583,444	18,043,222	$7,900,479
Czechoslovakia			9,814,879	5,112,556	8,115,133	3,518,238
Japan	9,755,260	2,100,255	5,778,132	4,122,245	3,405,370	2,869,170
United States	[4] 45,950,895	7,537,870	6,437,147	5,374,085	4,114,882	3,500,154
Italy	[5] 15,542,429	3,611,705	3,728,640	3,946,230	3,522,069	3,517,506
Belgium			6,394,222	2,092,008	6,437,212	2,301,811
Great Britain	41,203,008	9,207,684	5,677,840	5,341,879	5,237,456	5,300,407
Netherlands			5,812,655	2,988,084	5,548,978	2,862,820
Dutch East Indies	[6] 2,073,434	890,366	7,721,391	2,255,153		
Germany	7,138,495	1,682,422	8,903,718	5,072,469	6,843,740	3,942,210
France	4,706,601	1,416,316	3,335,560	3,813,572	2,997,154	3,258,265
Canada	[3] 2,633,516	594,414	3,179,172	1,826,464	3,345,635	1,953,253
Egypt			950,769	301,771	802,364	303,645
Austria	17,168,764	3,616,199	2,619,065	1,387,443	1,990,754	1,112,937
Switzerland	2,201,292	431,197	2,373,186	1,626,677	2,036,274	1,470,089
Sweden	2,376,166	699,737	2,633,077	1,637,863	2,886,827	
Spain	[7] 2,303,709	1,021,368	445,197	781,076	2,181,926	2,719,739
Poland			335,320	360,447	133,378	144,210

[1] Exports to China, 1913, from France, Germany, and Switzerland amounted to 69,181,230 pounds, valued at $11,516,567. Chinese statistics show value but not quantity of aniline dyes and include "unclassified dyes" which may contain other than coal-tar dyes.
[2] Exclusive of aniline dyes and dyes and colors unclassified amounting in value to $5,861,264 in 1929.
[3] Year ending Mar. 31.
[4] Fiscal year 1914; quantity from Special Agents Series No. 121, value from Foreign Commerce and Navigation of the United States.
[5] Aniline dyes only in 1913.
[6] Quantity of synthetic Indigo not shown for 1913.
[7] 1914.

NOTES ON THE DYE TRADE OF FOREIGN COUNTRIES

Events of international interest occurring in the dye trade in 1930 were few. The information given in the following pages is taken from various trade publications and from reports of official representatives of the United States abroad.

Great Britain.—An event of primary importance in international dye trade was the continuation for another year of the British dyestuffs import regulation act of 1920. The statutory term of this act was to expire in January, 1931. After a period of uncertainty and in the face of strong opposition the Government included the dyestuffs act in the continuance bill of routine expiring laws, to avoid jeopardizing the continuation of other vitally necessary laws.

The application of the act has been modified by Parliament. Licenses will now be granted to foreign producers unless British manufacturers sell at prices as low as those of foreign producers, provided they are not "dumping" prices, and import licenses will now be granted on the basis of current prices instead of on the former basis of a multiple of pre-war prices.

It is not known whether the import regulation act applying to dyes will be extended beyond January, 1932.

Imperial Chemical Industries (Ltd.), the principal producer of dyes in Great Britain, strengthened its position by the acquisition in 1930 of the British Alizarine Co. (Ltd.), which had operated independently for 50 years.

Table 37 gives figures for the production of dyes in 1928, 1929, and 1930 as prepared by the dyestuffs industry development committee and issued by the British Board of Trade. Although the output of a few small firms is not included, the totals represent substantially the British production.

TABLE 37.—*United Kingdom: Production of dyes*

[Pounds]

	Blacks	Blues	Browns	Greens	Oranges	Reds	Violets	Yellows	Total
1928									
Direct cotton colors	2,376,063	1,466,201	514,996	156,100	343,248	958,646	153,329	968,579	6,937,162
Acid wool colors	1,612,762	1,632,230	179,616	371,053	645,663	1,631,186	556,433	897,427	7,526,370
Chrome and mordant colors (including alizarin)	1,722,850	715,855	756,447	85,912	800,410	5,079,797	53,837	379,629	9,594,737
Basic colors	21,412	460,320	169,310	242,529	167,511	559,957	500,964	392,690	2,514,693
Sulfur colors	4,992,737	347,874	885,448	155,423	20,899	100,673	----------	77,308	6,580,362
Vat colors (including Indigo)	193,365	9,967,653	78,805	204,149	121,641	228,754	289,557	203,418	11,287,342
Dyestuffs for making color lakes	162	138	----------	117,789	281	1,257,085	----------	116,056	1,491,511
Oil, spirit, wax, and miscellaneous colors	441,149	400,666	59,765	3,130	84,968	104,467	42,370	51,922	[1] 4,974,903
Total	11,360,500	14,990,937	2,644,387	1,336,085	2,184,621	9,920,565	1,596,490	3,087,029	[1] 50,907,080
1929									
Direct cotton colors	2,467,943	1,684,257	626,592	249,782	354,992	879,095	147,311	978,753	7,388,725
Acid wool colors	1,417,243	1,366,020	173,357	440,632	725,005	1,752,169	579,531	971,373	7,425,330
Chrome and mordant colors (including alizarin)	1,782,860	618,806	923,111	82,321	627,677	5,160,149	40,639	379,171	9,614,734
Basic colors	----------	489,862	194,775	330,562	103,186	478,428	526,402	427,922	2,551,137
Sulfur colors	5,008,413	504,838	1,020,186	101,285	26,625	113,102	----------	89,794	6,864,243
Vat colors (including Indigo)	157,297	12,977,825	144,759	440,474	136,650	307,597	306,981	212,118	14,683,701
Dyestuffs for lake making	627	----------	673	136,652	1,851	1,566,548	----------	156,517	1,862,868
Cellulose acetate silk, oil, spirit, wax, and miscellaneous colors	472,362	740,046	69,816	24,306	148,476	184,416	68,862	98,709	[1] 5,394,294
Total	11,306,745	18,381,654	3,153,269	1,806,014	2,124,462	10,441,504	1,669,726	3,314,357	[1] 55,785,032
1930									
Direct cotton colors	2,372,831	1,448,755	615,274	161,818	323,454	846,390	132,876	814,893	6,716,291
Acid wool colors	1,405,951	1,319,241	234,221	270,736	683,782	1,364,138	282,561	888,900	6,449,530
Chrome and mordant colors (including alizarin)	1,609,251	339,735	881,912	50,155	406,361	3,245,650	28,895	316,908	6,878,865
Basic colors	21,708	441,573	180,393	281,916	115,326	486,974	447,293	392,364	2,367,547
Sulfur colors	3,836,103	387,486	722,988	71,258	25,102	99,261	----------	89,754	5,231,954
Vat colors (including Indigo)	128,576	7,559,707	168,250	504,888	123,220	227,974	230,193	125,455	9,068,263
Dyestuffs for lake making	41,261	687	25	100,453	----------	1,111,906	----------	91,565	1,345,897
Cellulose acetate silk colors	95,542	598,207	3,986	438	176,147	216,500	70,046	72,517	1,033,383
Oil, spirit, wax colors	292,967	406,148	6,849	276	22,247	16,031	7,434	32,116	784,068
Unclassified colors	57,698	16,827	33,558	----------	4,754	14,091	900	510	[1] 2,714,445
Total	9,861,890	12,318,366	2,847,456	1,441,938	1,880,393	7,628,915	1,200,196	2,824,982	[1] 42,590,243

[1] Including quantities not separately distinguished.

Germany.—Except for the entry of German interests into the Italian dye industry, the foreign trade of Germany in dyes during 1930 was uneventful. This development is discussed under Italy.

The I. G. continued its policy of concentration and rationalization. Despite its adherence to this policy, there were employed on January 1, 1930, 74,603 laborers and 22,915 other employees, a total of 97,518, against a total of 81,601 on January 1, 1926, and 46,116 on January 1, 1914.[1]

The dye trust is generally credited with producing one-third of the total output of chemicals in Germany; employing one-fourth of all chemical labor, and controlling 65 per cent of the total nitrogen capacity, 100 per cent of dye capacity, 40 per cent of pharmaceutical, 30 per cent of rayon, and with producing many minor products.

Switzerland.—Exports of Swiss dyes decreased only slightly until the end of September, 1930. During the last quarter, however, the decline was appreciable. Proportionately more of the higher priced dyes were shipped out than in previous years; sales of the cheaper colors were made largely from branch plants in foreign countries. The sales agreement between German, Swiss, and French producers, consummated in 1929, and said to be still in force, is reported to have been beneficial to the export trade of Switzerland in 1930.

Exports of pharmaceuticals were reported normal in 1930. New medicinals of the Sandoz Chemical Works are said to have been well received by foreign customers.

France.—Production, imports, and exports of dyes in France decreased in 1930 as compared with 1929.

The following are preliminary figures showing the production by chemical classes in 1930[2]:

	Pounds
Aniline dyes	14, 572, 406
Vat and Indigo dyes, etc	9, 369, 550
Sulfur dyes	5, 313, 086
Diphenyl and triphenyl methane dyes	2, 391, 991
Alizarin dyes	1, 344, 806
Indophenol, azines, oxazines, and thiazines	253, 529
Other dyes	1, 918, 002
Total	35, 163, 370

Italy.—The principal development of interest in Italy was the reorganization[3] of the Aziende Chimiche Nazional Associate (A. C. N. A.), Italy's largest dye company. The divisions of the A. C. N. A. producing dyes, intermediates, and inorganic chemicals have been acquired jointly by the I. G. of Germany and the Montecatini Company. Of the new capital of 60,000,000 lire, the I. G. will take 29,000,000 lire, and Montecatini 31,000,000 lire.

Japan.—At the close of 1929 there were 19 factories in Japan producing dyes; 3 producing intermediates; and 14, producing both dyes and intermediates. Invested capital was 20,311,136 yen, and 2,376 workmen were employed.

Domestic manufacturers have installed capacity to produce about 85 per cent of the country's consumption. Basic color production

[1] "German Chemical Developments in 1930," Trade Information Bulletin No. 753, U. S. Dept. of Commerce.
[2] E. C. Taylor, Assistant Trade Commissioner, Paris.
[3] Chemical Trade Journal, Mar. 13, 1931, p. 254.

has increased 70 per cent in the last five years and includes practically all of the basic group except Rhodamine 6G. Direct dye production has increased 24 per cent and acid dye production 50 per cent. Most of the mordant dyes are imported, as are the vat dyes, including Indigo. Since 70 per cent of the dye consumption is confined to sulfur dyes, development in this group has been greatest and some quantities are exported to China. In 1928 about 73 per cent and in 1929 about 68 per cent of the consumption of all coal-tar dyes was of domestic manufacture. Exports in 1930 were principally to China.

Japanese manufacturers who can produce commercially 23 specified dyes are offered a subsidy by the Government.

Spain.—Since the abolition of import restrictions on dyes in Spain (see Census of Dyes, 1929, p. 170) imports of dyes and tanning materials into Spain in 1930 increased about 25,000,000 pesetas.[3]

Poland.—According to the Polish Statistical Central Bureau [4] the production of dyes in Poland in 1929 and 1928 was as follows:

Class	1928	1929	Class	1928	1929
	Pounds	*Pounds*		*Pounds*	*Pounds*
Direct dyes	1,044,980	650,357	Basic dyes	11,023	35,274
Acid dyes	456,352	346,122	Chrome dyes	77,161	88,184
Sulfur dyes	855,385	645,948	Nigrosine		57,320

[3] Chemical Trade Journal, Mar. 27, 1931, p. 306.
[4] Chemical Trade Journal, Mar. 6, 1931, p. 232.

PART VI

APPENDIX

STATISTICS OF DOMESTIC IMPORTS AND EXPORTS

DIRECTORY OF MANUFACTURERS OF DYES AND OTHER SYNTHETIC ORGANIC CHEMICALS, 1930

PART VI

STATISTICS OF IMPORTS AND EXPORTS

TABLE 38.—*Coal-tar products: Imports entered for consumption*

GROUP I.—CRUDE (FREE)

	Year			
	1929		1930	
	Quantity	Value	Quantity	Value
Benzene, pounds	18,164,952	$405,029	17,803,165	$397,621
Dead or creosote oil, gallons	79,300,575	10,119,379	66,921,827	7,806,175
Naphthalene, solidifying at less than 79° C., pounds	35,007,419	598,718	27,666,834	397,292
Coal tar, crude, barrels	14,473	34,214	14,569	35,080
Pitch, coal-tar, barrels	1,081	3,320	1,266	4,398
Acenaphthene, fluorene, methylanthracene, and methylnaphthalene, pounds	44,360	11,351	62,958	14,438
Anthracene, purity less than 30 per cent, pounds	91,766	1,890	189,451	3,444
Anthracene oil, gallons	33,283	6,785	11,799	1,835
Cresylic acid, pounds	17,856,765	952,110	9,009,674	501,418
Carbazole, less than 65 per cent pure, pounds			3,308	25
Cumene, cymene, pounds			2,116	233
Pyridine, pounds	40,114	5,991	5,794	2,833
Xylene, pounds			800	81
All other distillates n. s. p. f., which on being subjected to distillation yield in the portion distilling below 190° C. a quantity of tar acids less than 5 per cent of the original distillate, pounds	298,619	18,845	347,923	11,953
All other products found naturally in coal tar, whether produced or obtained from coal tar or other sources, n. s. p. f., pounds	160,514	12,705	398,366	10,065

GROUP. II—DUTIABLE AT 40 PER CENT AD VALOREM PLUS 7 CENTS PER POUND

Article and year	Pounds	Value	Duty	Actual and computed ad valorem rate
Not colors, dyes, or stains, photographic chemicals, medicinals, flavors, or explosives, etc., n. s. p. f.:				
Acids—				
Carbolic [1]—				
Crystal (phenol)—				
1929 (T. D. 42423)	433,385	$44,226	$24,014	54.30
1930	500	115	[2] 5 40	39.37
Liquid (cresylic acid or cresol)—				
1929 (T. D. 42337)	2,343,529	183,324	118,688	64.74
1930	1,275,872	96,047	63,865	66.50
Coal-tar acids, n. s. p. f.—				
1929	11,100	10,671	5,045	47.28
1930	10,612	5,186	2,817	54.32
Aniline oil and salts—				
1929				
1930	2,054	1,374	693	50.46
Anthraquinone, aminoanthraquinone, and nitroanthraquinone—				
1929	100	39	23	57.95
1930				
Benzaldehyde, not medicinal, and nitrobenzaldehyde—				
1929				
1930	17,646	13,134	6,489	49.41

[1] Dutiable at 20 per cent plus 3½ cents per pound.
[2] Antidumping duty.

TABLE 38.—*Coal-tar products: Imports entered for consumption*—Continued

GROUP II.—DUTIABLE AT 40 PER CENT AD VALOREM PLUS 7 CENTS PER POUND—Continued

Article and year	Pounds	Value	Duty	Actual and computed ad valorem rate
Not colers, dyes, or stains, etc.—Continued.				
Benzanthrone, benzoquinone, benzidine, benzidine sulfate, and benzyl, benzal, and benzoyl chloride—				
1929	4,567	$4,051	$1,940	47.89
1930	3,853	4,894	2,227	45.50
Dimethylaminophenol, dimethylphenylbenzylammonium hydroxide, and dimethylphenylenediamine—				
1929				
1930	880	396	220	55.56
Metacresol, orthocresol, and paracresol, 90 per cent or more pure—				
1929	227,974	32,098	28,797	89.72
1930	[3] 131,134	14,973	[2] 3,135	122.25
			15,169	
	[4] 71,183	11,762	4,844	41.18
Methylanthraquinone—				
1929	3,628	3,344	1,592	47.61
1930				
Naphthol, alpha and beta, not medicinal—				
1929	34,486	78,108	33,657	43.09
1930	86,077	66,070	32,453	49.12
Phenylenediamine, phenylglycine, phenylhydrazine and phenylnaphthylamine—				
1929	55	563	229	40.67
1930	150	54	32	59.44
Resorcinol, not medicinal—				
1929	31,497	39,351	17,945	15.60
1930	57,518	67,418	30,993	45.97
Tolidine, toluene sulfochloride, toluene sulfonamide, toluidine, and tolylenediamine—				
1929	4,863	2,721	1,429	52.52
1930				
All distillates of coal, blast-furnace, oil-gas, and water-gas tar which on being subject to distillation below 215° C. yield a quantity of tar acids equal to or more than 75 per cent of the original distillate—				
1929	227	23	25	109.09
1930				
All similar products manufactured from the products provided for in pars. 27 and 1549 [5]—				
1929	1,138,898	977,255	470,625	48.16
1930	851,791	704,917	[2] 5,444	49.23
			341,592	

GROUP III.—DUTIABLE AT 45 PER CENT AD VALOREM PLUS 7 CENTS PER POUND

When obtained, derived, or manufactured in whole or in part from any of the products provided for in Group I (free) or II, including natural Indigo, and natural alizarin, and their derivatives:				
Alizarin, natural—				
1929	17,518	21,817	11,044	50.62
1930				
Colors, dyes, stains, etc., obtained, derived, or manufactured from alizarin—				
1929	102	163	80	49.38
1930	299	231	125	54.06
Indigo, natural—				
1929				
1930	11,507	13,251	6,768	51.08
Colors, dyes, stains, etc., derived from Indigo—				
1929	550	381	210	55.10
1930				
Colors, dyes, stains, color acids, and color bases, n. s. p. f.—				
1929	7,316,605	8,154,435	4,181,658	51.28
1930	4,939,676	5,246,616	2,706,755	51.59

[2] Antidumping duty.
[3] Act of 1922—Jan. 1 to June 17.
[4] Act of 1930—June 18 to Dec. 31, dutiable at 20 per cent plus 3½ cents per pound.
[5] Par. 1651 beginning June 18, 1930.

TABLE 38.—*Coal-tar products: Imports entered for consumption*—Continued

GROUP III.—DUTIABLE AT 45 PER CENT AD VALOREM PLUS 7 CENTS PER POUND—Continued

Article and year	Pounds	Value	Duty	Actual and computed ad valorem rate
When obtained, derived, etc.—Continued.				
Coal-tar medicinals—				
Acetanilide, acetphenetidin (phenacetin), and acetylsalicylic acid (aspirin)—				
1929	229	$201	$106	52.98
1930				
Antipyrine—				
1929	103,277	108,075	55,863	51.69
1930	41,202	57,849	28,916	49.99
Arsphenamine (salvarsan), neoarsphenamine and similar arsenical medicinal compounds—				
1929	14	5,973	2,689	45.02
1930	21	10,354	4,661	45.02
Beta-naphthol and benzaldehyde—				
1929				
1930	3,053	4,039	2,031	50.28
Benzoic acid—				
1929	225	135	76	56.67
1930	518	315	178	56.51
Guaiacol and derivatives—				
1929	7,666	9,451	4,790	50.68
1930	221	364	179	49.25
Novocain or procaine—				
1929	25	9,781	4,403	45.02
1930	37	21,036	9,469	45.01
Phenolphthalein—				
1929	992	1,091	560	51.36
1930				
Resorcinol—				
1929	24,565	35,009	17,474	49.91
1930	900	1,515	745	49.16
Salicylic acid and its salts—				
1929	2,535	1,518	861	56.69
1930				
Salol—				
1929	5	5	3	52.00
1930				
Coal-tar medicinals, n. s. p. f.—				
1929	74,376	224,227	106,108	47.32
1930	24,230	177,792	81,702	45.95
Resinlike products prepared from articles provided for in par. 27 or 1549 [5] [6]—				
1929	67,529	17,503	12,603	72.00
1930	46,463	10,417	7,940	76.22
Photographic chemicals—				
1929	18,709	56,785	26,863	47.31
1930	30,116	110,003	51,609	46.92
Flavors and perfumes—				
Musk, artificial, benzyl acetate, benzyl benzoate, coumarin, natural coumarin, diphenyloxide, heliotropine (from coal tar, T. D. 40998), methyl anthranilate, methyl salicylate, natural methyl salicylate, or oil of wintergreen or oil of sweet birch, phenylacetaldehyde, phenylethyl alcohol, and other synthetic odoriferous or aromatic chemicals not containing alcohol—				
1929	128,965	447,082	210,215	47.02
1930	88,430	302,840	142,468	47.04
Vanillin—				
1929	20,703	137,579	63,360	46.05
1930	32,817	202,761	93,540	46.13
Other flavors—				
1929	165	413	197	47.80
1930	315	1,642	761	46.34

[5] Par. 1651 beginning June 18, 1930.
[6] Bakelite prohibited, T. D. 41512.

TABLE 39.—*Coal-tar products: General imports*

DEAD OR CREOSOTE OIL (FREE)

Imported from—	1929		1930	
	Quantity	Value	Quantity	Value
	Gallons		*Gallons*	
United Kingdom	39,383,991	$5,067,042	27,484,886	$3,207,307
Netherlands	20,157,187	2,553,870	20,736,875	2,433,778
Germany	275	36	891,490	99,924
Belgium	17,944,092	2,282,456	13,794,365	1,585,699
Japan	414,781	48,944	2,671,096	307,159
Canada	1,400,249	167,031	1,331,898	170,904
All other countries			11,217	1,404
Total	79,300,575	10,119,379	66,921,827	7,806,175

PYRIDINE (FREE)

	Pounds		*Pounds*	
Germany	31,167	$4,158		
United Kingdom	8,947	1,833	5,794	$2,833
Total	40,114	5,991	5,794	2,833

ALL OTHER CRUDES (FREE)

Imported from—	1929	1930
Belgium	$49,149	$13,320
France	19,747	
United Kingdom	902,838	547,858
Canada	411,285	409,163
Germany	612,953	355,176
Netherlands	687	12,797
Mexico	48,308	21,073
All other countries		14,097
Total	2,044,967	1,373,484

COAL-TAR ACIDS

Imported from—	1929		1930	
	Quantity	Value	Quantity	Value
	Pounds		*Pounds*	
United Kingdom	1,594,973	$126,051	784,947	$50,121
Netherlands	1,102	117		
Germany	377,078	34,120	38,987	2,505
Canada			815	132
Total	1,973,153	160,288	824,749	52,758

OTHER COAL-TAR INTERMEDIATES

France	48,238	$60,541	70,648	$82,972
Germany	1,707,238	1,340,630	1,031,454	824,976
Netherlands	9,737	14,618	1,669	3,374
United Kingdom	144,426	23,097	184,239	26,678
Switzerland	70,030	42,181	99,020	81,115
Canada	5,021	1,315	788	1,095
Soviet Russia in Europe			33,069	1,240
All other countries	4,100	3,465	1,781	1,040
Total	1,988,790	1,485,847	1,422,668	1,022,490

TABLE 39.—*Coal-tar products: General imports*—Continued

ALIZARIN AND DERIVATIVES

Imported from—	1929		1930 [1]	
	Quantity	Value	Quantity	Value
	Pounds		*Pounds*	
France				
Germany				
Switzerland	17,620	$21,980		
United Kingdom				
Canada				
Total	17,620	21,980		

[1] No imports.

COLORS, DYES, STAINS, COLOR ACIDS, AND COLOR BASES, N. E. S.

Belgium	76,259	$95,819	63,010	$80,686
France	108,312	160,012	43,686	57,239
Germany	4,685,326	5,019,070	3,102,836	3,318,115
Switzerland	2,563,469	3,000,159	1,556,607	1,637,126
United Kingdom	91,957	100,779	114,174	118,766
Italy	13,854	11,626	21,298	24,564
Netherlands	18,920	21,446	12,732	18,860
Canada	33,594	38,276	14,249	16,798
Czechoslovakia			23,084	11,657
All other countries	1,428	850	288	355
Total	7,593,119	8,448,037	4,951,964	5,284,166

COAL-TAR MEDICINALS

France	40,558	$77,414	13,636	$43,386
Germany	56,608	117,429	38,635	142,450
Italy	283	2,168	30	206
Netherlands	1,036	3,791	22	1,350
Switzerland	36,714	89,060	16,657	62,732
United Kingdom	16,628	30,533	1,197	2,927
Canada	163	4,240	1,425	19,651
All other countries	1,167	7,827	14	179
Total	153,157	332,462	71,616	272,881

OTHER FINISHED COAL-TAR PRODUCTS

France	344	$2,176	15,801	$52,330
Germany	101,339	169,239	73,958	339,665
Switzerland	5,349	31,774	12,449	36,944
United Kingdom	359	727	39,677	6,252
Netherlands			4,780	17,412
All other countries	706	890	3,204	5,773
Total	108,097	204,806	149,869	458,376

TABLE 40.—*Coal-tar products: Domestic exports*

COAL-TAR PITCH

Exported to—	1929		1930	
	Quantity	Value	Quantity	Value
	Tons		*Tons*	
Europe	1,481	$44,211	22,323	$184,452
North America	8,311	159,168	4,809	102,848
South America	13	668	2	65
Asia			86	2,259
Oceania			1	31
Total	9,805	204,047	27,221	289,655

CRUDE COAL TAR

Exported to—	1929		1930	
	Quantity	Value	Quantity	Value
	Barrels [1]		*Barrels* [1]	
Europe	2,647	$23,743	649	$4,939
North America	104,028	351,872	85,492	263,295
South America	1,818	13,122	655	5,320
Asia	1	20	6	57
Oceania	33	356	12	155
Africa	10	103	9	94
Total	108,537	389,216	86,823	273,860

[1] Barrels of 500 pounds.

COAL-TAR-PITCH COKE

Exported to—	1929		1930	
	Quantity	Value	Quantity	Value
	Tons		*Tons*	
Netherlands	3,717	$38,983	1,001	$10,216
Canada	4,700	23,232	8,473	51,740
Cuba	2,096	10,902		
Italy			1,330	16,768
All other countries	1,081	11,299	1,074	10,419
Total	11,594	84,416	11,878	89,143

COAL-TAR DISTILLATES—BENZOL

Exported to—	1929		1930	
	Quantity	Value	Quantity	Value
	Gallons		*Gallons*	
Germany	17,828,355	$4,459,506	21,440,166	$4,655,513
France	1,326,496	344,332	717,529	181,810
Belgium	1,194,059	333,771	216,444	55,490
Netherlands	1,921,733	422,782	3,576,971	751,165
United Kingdom	9,251,276	2,506,768	11,780,960	2,529,943
Italy	1,030,387	214,739	1,228,891	209,313
Canada	34,433	13,597	19,739	5,834
Mexico	733	407	83	83
Argentina	168,915	59,642	40,749	15,419
Chile	45,433	16,119	22,229	8,690
Australia	17,212	7,543	8,266	3,083
Finland			510,888	86,851
Dutch West Indies	215	96	4,753,185	996,223
All other countries	527,134	157,576	284,229	66,117
Total	33,346,381	8,536,878	44,600,329	9,565,534

TABLE 40.—*Coal-tar products: Domestic exports*—Continued

OTHER CRUDE DISTILLATES

Exported to—	1929	1930
	Value	*Value*
France		$1,019
Australia	$26,944	15,105
Canada	394,680	303,271
Peru	988	9,889
Mexico	40,010	19,937
Argentina	6,318	11,965
Cuba	12,787	5,301
Japan	1,179	5,941
United Kingdom	90,703	50,700
Chile	6,840	4,429
Nicaragua	1,583	12,067
All other countries	43,274	39,675
Total	625,306	479,299

INTERMEDIATE COAL-TAR PRODUCTS

Exported to—	1929		1930	
	Quantity	Value	Quantity	Value
	Pounds		*Pounds*	
France			145,510	$28,927
Germany	17,422	$2,152	263,995	9,629
Netherlands	179,522	26,213	215,089	31,137
Switzerland	6,725	1,220	3,000	413
Canada	863,158	107,825	823,104	83,988
Mexico	107,575	13,367	15,750	3,221
Cuba	101,780	8,294	112,898	10,001
Brazil	17,423	2,893	26,245	3,468
China	89,788	17,948	12,389	2,544
United Kingdom	204,491	33,730	127,550	13,656
Japan	979,489	168,808	374,151	86,238
Australia	109,643	7,954	6,669	543
All other countries	131,494	27,594	186,353	32,468
Total	2,808,510	417,998	2,312,703	306,233

FINISHED COAL-TAR PRODUCTS

PACKAGE DYES FOR HOUSEHOLD USE

Exported to—	1929		1930	
	Quantity	Value	Quantity	Value
	Pounds		*Pounds*	
United Kingdom	920	$1,117	3,494	$6,243
Canada	41,469	36,017	28,257	21,783
France	603	683	2,083	3,720
Mexico	19,749	15,005	22,893	20,354
Cuba	32,085	24,800	23,934	21,182
South America	33,586	32,259	41,948	33,259
Japan	1,915	1,916	1,272	1,192
Philippine Islands	6,455	5,436	7,680	5,825
British India	23,338	7,911	41,881	16,271
Australia	3,313	1,810	852	614
New Zealand	38,342	16,216	26,219	13,065
Union of South Africa	11,803	4,647	14,220	7,017
All other countries	84,664	75,478	56,357	42,572
Total	298,242	223,295	271,090	193,097

TABLE 40.—*Coal-tar products: Domestic exports*—Continued

OTHER COLORS, DYES, AND STAINS

Exported to—	1929		1930	
	Quantity	Value	Quantity	Value
	Pounds		*Pounds*	
Belgium	1,593,928	$340,276	1,197,456	$318,870
Czechoslovakia	122,135	28,295	207,963	63,720
France	9,822	10,437	133,464	86,340
Germany	455,713	197,578	538,220	103,898
Netherlands	13,172	3,369	37,659	10,527
Soviet Russia in Europe	67,247	55,236	91,796	79,590
United Kingdom	21,668	14,854	20,028	11,190
Canada	1,870,498	935,995	1,841,708	881,425
Mexico	177,366	66,819	228,076	97,644
Cuba	42,005	24,295	33,365	19,360
South America	578,426	229,966	322,310	134,910
British India	1,467,512	628,723	1,404,167	616,307
China	24,514,990	3,215,200	19,409,044	2,467,645
Hong Kong	645,949	150,798	438,418	95,161
Japan	1,805,016	1,053,516	1,313,484	775,745
Italy	4,399	2,272	247,010	109,355
Philippine Islands	201,292	28,798	106,293	14,428
Australia	893	1,075	1,328	1,045
New Zealand	1,879	1,095	7,310	1,995
Union of South Africa	4,584	2,574	5,767	2,379
All other countries	233,589	64,620	411,384	161,199
Total	33,832,083	7,055,791	27,996,250	6,052,733

MEDICINALS

Exported to—	1929		1930	
	Quantity	Value	Quantity	Value
	Pounds		*Pounds*	
China	9,610	$7,031	41,273	$23,613
United Kingdom	5,712	4,448	70	234
Canada	65,566	17,967	775,451	69,725
Mexico	23,140	62,207	11,101	15,976
Cuba	6,269	2,293	263	200
Argentina	126	510	162	267
British India	8,436	6,969	9,693	14,654
Japan	23,758	20,130	79,565	44,565
Australia	3,425	3,131	1,284	1,118
All other countries	36,981	60,168	14,776	19,029
Total	183,023	184,854	933,638	189,381

LAMINATED SYNTHETIC RESIN SHEETS AND PLATES [1]

Exported to—	1929		1930	
	Quantity	Value	Quantity	Value
			Pounds	
United Kingdom			950	$884
Canada			8,970	6,454
Cuba			1,040	1,061
Japan			1,565	1,029
All other countries			501	506
Total			13,026	9,934

[1] Not reported separately previous to 1930.

TABLE 40.—*Coal-tar products: Domestic exports*—Continued

OTHER SYNTHETIC RESIN PRODUCTS AND MANUFACTURES [1]

Exported to—	1929		1930	
	Quantity	Value	Quantity	Value
France				$23,424
Italy				13,532
United Kingdom				27,212
Canada				81,899
All other countries				17,643
Total				163,710

[1] Not reported separately previous to 1930.

OTHER FINISHED COAL-TAR PRODUCTS

Exported to—	1929		1930	
	Quantity	Value	Quantity	Value
	Pounds		*Pounds*	
Belgium			4,974	$2,157
France	6,299	$2,624	2,175	1,512
Germany	3,075	952	98,995	12,656
Italy	1,698	98	2,525	300
United Kingdom	681,468	69,959	117,479	17,566
Canada	325,124	83,662	266,168	56,014
Mexico	79,329	11,315	31,046	6,885
Cuba	51,022	11,114	92,283	20,429
Argentina	25,625	13,041	31,300	20,583
Brazil	9,894	6,216	3,741	3,228
Colombia	13,495	4,384	112,895	17,956
Peru	25,754	5,165	69,788	13,200
China	53,489	48,323	11,858	8,938
Japan	29,665	10,052	57,612	27,456
Australia	49,542	7,945	37,528	6,965
Philippine Islands	38,789	28,205	54,320	29,886
All other countries	116,054	36,140	207,903	61,027
Total	1,510,322	339,195	1,202,590	306,758

Directory of manufacturers of dyes and other synthetic organic chemicals, 1930

No.	Name of company	Office address (location of plant given in parentheses if not in same city as office)
1	Abbott Laboratories, The	4753 East Ravenswood Avenue, Chicago, Ill. (North Chicago, Ill.).
2	Ad-Co Color Corporation	24 Avenue B, Newark, N. J.
3	Algon Color & Chemical Corporation	132 Front Street, New York, N. Y. (Elizabeth, N. J.).
4	Alston-Lucas Paint Co	1031 Currier Street, Chicago, Ill.
5	Althouse Chemical Co., The	540 Pear Street, Reading, Pa.
6	Alyco Manufacturing Co. (Inc.)	86 Orange Street, Bloomfield, N. J.
7	Amalgamated Dyestuff & Chemical Works (Inc.).	75 Hudson Street, New York, N. Y. (Newark, N. J.)
8	American Aniline Products (Inc.)	45 East Seventeenth Street, New York, N. Y. (Lock Haven, Pa.).
9	American Catalin Corporation	230 Park Avenue, New York, N. Y. (Fords, N. J.).
10	American Chemical Products Co	7 Litchfield Street, Rochester, N. Y.
11	American Solvents & Chemical Corporation.	122 East Forty-second Street, New York, N. Y. (Albany, N. Y.)
12	American Tar Products Co. (Inc.)	Koppers Building, Pittsburgh, Pa. (Cicero, Ill.; Youngstown, Ohio; St. Louis, Mo.; Woodward, Ala.; Carrollville, Wis.; Follansbee, W. Va.; Utica, N. Y.; Kearny, N. J.; St. Paul, Minn.; Hamilton, Ohio).
13	Ansbacher-Siegle Corporation	50 Union Square, New York, N. Y. (Rosebank, Staten Island, N. Y.).
14	Apex Chemical Corporation (Inc.)	225 West Thirty-fourth Street, New York, N. Y. (Elizabethport, N. J.)
15	Atlantic Creosoting Co. (Inc.)	P. O. Box 902, Norfolk, Va.
16	Baird & McGuire (Inc.)	Holbrook, Mass.
17	Barrett Co., The	40 Rector Street, New York, N. Y. (Plants distributed throughout the United States.)

Directory of manufacturers of dyes and other synthetic organic chemicals, 1930—Con.

No.	Name of company	Office address (location of plant given in parentheses if not in same city as office)
18	Bates Chemical Co	Lansdowne, Pa.
19	Bayer Co. (Inc.), The	170 Varick Street, New York, N. Y. (Rensselaer, N. Y.)
20	Beaver Chemical Works (Inc.)	Damascus, Va.
21	Beaver Manufacturing Co	Ballardvale, Mass.
22	Belle Chemical Co	495 Portland Street, Belleville, N. J.
23	Benzol Products Co	237 South Street, Newark, N. J. (Piscataway, N. J.)
24	Berkheimer Manufacturing Co., J. E	2928 South M Street, Tacoma, Wash.
25	Brooklyn Color Works (Inc.)	129 Cherry Street, Brooklyn, N. Y.
26	Brown Co	404 Commercial Street, Portland, Me. (Berlin, N. H.)
27	Bush & Co. (Inc.), W. J	370 Seventh Avenue, New York, N. Y. (Linden, N. J.)
28	Cable Chemical Works	185 North Wabash Avenue, Chicago, Ill. (Cable, Wis.)
29	Calco Chemical Co. (Inc.), The	Bound Brook, N. J.
30	California Chemical Corporation	111 Sutter Street, San Francisco, Calif. (Newark, San Mateo, and Chula Vista, Calif.)
31	California Ink Co. (Inc.), The	545 Sansome Street, San Francisco, Calif. (West Berkeley, Calif.)
32	Carbide & Carbon Chemicals Corporation	30 East Forty-second Street, New York, N. Y. (South Charleston, W. Va.; Niagara Falls, N. Y.)
33	Carus Chemical Co. (Inc.)	1377 Eighth Street, LaSalle, Ill.
34	Celluloid Corporation	290 Ferry Street, Newark, N. J.
35	Childs Pulp Colors (Inc.)	43 Summit Street, Brooklyn, N. Y.
36	Cincinnati Chemical Works (Inc.)	Evanston Station, Box 20, Cincinnati, Ohio. (Norwood and St. Bernard, Ohio.)
37	Citro Chemical Co	199 Maywood Avenue, Maywood, N. J.
38	Coleman & Bell Co., The	4101 Main Avenue, Norwood, Ohio.
39	Commonwealth Color & Chemical Co	Nevins, Butler and Baltic Streets, Brooklyn, N. Y.
40	Consolidated Color & Chemical Co	230 Fifth Avenue, New York, N. Y. (Rensselaer, N. Y.)
41	Continental-Diamond Fibre Co	Newark, Del. (Bridgeport, Pa.)
42	Cooks Falls Dye Works (Inc.)	99 John Street, New York, N. Y. (Cooks Falls, N. Y.)
43	Coopers Creek Chemical Co	River Road, West Conshohocken, Pa.
44	Delta Chemical & Iron Co	Wells, Mich.
45	Diarsenol Co. (Inc.)	771 Ellicott Square, Buffalo, N. Y.
46	Dow Chemical Co., The	Midland, Mich.
47	DuPont Ammonia Corporation	DuPont Building, Wilmington, Del. (Belle, W. Va.)
48	DuPont de Nemours & Co., E. I	Wilmington, Del. (Deep Water Point, N. J.)
49	Durium Products Corporation	460 West Thirty-fourth Street, New York, N. Y.
50	Dyestuffs & Chemicals (Inc.)	Eleventh ahd Monroe Streets, St. Louis, Mo.
51	Eakins, Inc., J. S. & W. R	55 Berry Street, Brooklyn, N. Y.
52	Eastman Kodak Co	343 State Street, Rochester, N. Y.
53	Federal Color Laboratories, (Inc.)	4633 Forest Avenue, Norwood, Ohio.
54	Felton Chemical Co. (Inc.)	599 Johnson Avenue, Brooklyn, N. Y.
55	Fine Colors Co. (Inc.)	21 McBride Avenue, Paterson, N. J.
56	Florasynth Laboratories (Inc.)	1513 Olmstead Avenue, New York, N. Y. (Bronx, N. Y.).
57	Ford Motor Co	Iron Mountain, Mich. (Kingsford, Mich.).
58	Foster-Heaton Co	833 Magnolia Avenue, Elizabeth, N. J.
59	Franco-American Chemical Works	Carlstadt, N. J.
60	Fries Bros	92 Reade Street, New York, N. Y. (Bloomfield, N. J.)
61	Fries & Co. (Inc.), George G	160 Fifth Avenue, New York, N. Y. (Long Island, N. Y.).
62	Gebauer Chemical Co., The	826 Hanna Building, Cleveland, Ohio.
63	General Aniline Works (Inc.)	1150 Broadway, New York, N. Y. (Grasselli, N. J.; Rensselaer, N. Y.).
64	Givaudan-Delawanna (Inc.)	Delawanna Avenue, Delawanna, N. J.
65	Glyco Products Co. (Inc.)	33 Thirty-fifth Street, Brooklyn, N. Y.
66	Goodrich Co., The B. F	Akron, Ohio.
67	Grasselli Chemical Co. (Inc.), The	Guardian Building, Cleveland, Ohio (Newark, N. J.).
68	Great Western Electro-Chemical Co	9 Main Street, San Francisco, Calif. (Pittsburg, Calif.).
69	Hall Co., The C. P	504 Akron Savings & Loan Building, Akron, Ohio.
70	Hampden Paint & Chemical Co	161 Armory Street, Springfield, Mass.
71	Harmon Color Works (Inc.)	361 Harmon Street, Brooklyn, N. Y.
72	Heyden Chemical Corporation	50 Union Square, New York, N. Y. (Garfield and Perth Amboy, N. J.).
73	Holland Aniline Dye Co	R. F. D. 4, Holland, Mich.
74	Hooker Electrochemical Co	60 East Forty-second Street, New York, N. Y. (Niagara Falls, N. Y.).
75	Hynson, Westcott & Dunning	1030 North Charles Street, Baltimore, Md.
76	Imperial Color Works (Inc.)	Glens Falls, N. Y.
77	Inland Tar Co	38 South Dearborn Street, Chicago, Ill. (East Chicago, Ind.).
78	International Combustion Tar & Chemical Corporation.	200 Madison Avenue, New York, N. Y. (Chicago, Ill.; Newark, N. J.; Fairmont, W. Va.; Chattanooga, Tenn.; Granite City, Ill.; Dover, Ohio).
79	Jennison-Wright Co., The	Kreolite Building, Toledo, Ohio.
80	Johnson & Co., Charles Eneu	509 South Tenth Street, Philadelphia, Pa.
81	Kavalco Products (Inc.)	Nitro, W. Va.
82	Kent Color Corporation	2 South Ninth Street, Brooklyn, N. Y.

Directory of manufacturers of dyes and other synthetic organic chemicals, 1930—Con.

No.	Name of company	Office address (location of plant given in parentheses if not in same city as office)
83	Kentucky Color & Chemical Co	Thirty-fourth Street, south of Bank Street, Louisville, Ky.
84	Kessler Chemical Corporation, The	575 Nassau Street, Orange, N. J.
85	Klipstein & Sons Co. (Inc.), E. C	Empire State Building, New York, N. Y. (South Charleston, W. Va.).
86	Kohnstamm & Co. (Inc.), H	87 Park Place, New York, N. Y. (Brooklyn, N. Y.).
87	Lactein Co., The	640 Sixth Street, San Francisco, Calif.
88	LaMotte Chemical Products Co	McCormick Building, Baltimore, Md.
89	Lilly & Co., Eli	Indianapolis, Ind.
90	Lucidol Corporation	293 Larkin Street, Buffalo, N. Y.
91	Makalot Corporation	262 Washington Street, Boston Mass. (Waltham, Mass.)
92	Mallinckrodt Chemical Works	3600 North Second Street, St. Louis, Mo.
93	Marietta Dyestuffs Co	410 Peoples Bank Building, Marietta, Ohio.
94	Marx Color & Chemical Co., Max	192 Coit Street, Irvington, N. J.
95	Matawan Coal Tar Products Corporation	123 Liberty Street, New York, N. Y. (Matawan, N. J.)
96	Maywood Chemical Works	Maywood, N. J.
97	Mepham & Co., Geo. S	Twentieth Street and Lynch Avenue, East St. Louis, Ill.
98	Merck & Co. (Inc.)	Rahway, N. J. (Rahway, N. J.; Philadelphia, Pa.)
99	Merrimac Chemical Co. (Inc.)	148 State Street, Boston, Mass. (Everett, Mass.)
100	Metz Laboratories (Inc.), H. A	170 Varick Street, New York, N. Y. (Brooklyn, N. Y.; Newark, N. J.)
101	Monsanto Chemical Works	1724 South Second Street, St. Louis, Mo. (St. Louis, Mo.; Monsanto, Ill.)
102	National Aniline & Chemical Co. (Inc.)	40 Rector Street, New York, N. Y. (Buffalo, N. Y.)
103	Naugatuck Chemical Co., The	Naugatuck, Conn.
104	Neville Co., The	1004 Diamond Bank Building, Pittsburgh, Pa. (Neville Island, Pa.)
105	Newport Chemical Corporation	P. O. Box "M" South Milwaukee, Wis. (Carrollville, Wis.; Passaic, N. J.)
106	Newport Chemical Works (Inc.)	P. O. Box "M", South Milwaukee, Wis. (New Brunswick, N. J.)
107	Newport Manufacturing Co	P. O. Box "M" South Milwaukee, Wis. (Carrollville, Wis., Passaic, N. J.)
108	New York Color & Chemical Co. (Inc.)	Belleville, N. J.
109	New York Quinine & Chemical Works (Inc.).	99 North Eleventh Street, Brooklyn, N. Y.
110	Niacet Chemicals Corporation	Pine Avenue and Forty-seventh Street, Niagara Falls, N. Y.
111	Niagara Smelting Corporation	420 Lexington Avenue, New York, N. Y. (Niagara Falls, N. Y.).
112	Noil Chemical & Color Works (Inc.)	152 West One hundred and eighth Street, New York, N. Y.
113	Northwestern Chemical Co	Wauwatosa, Wis.
114	Novocol Chemical Manufacturing Co. (Inc.).	2923 Atlantic Avenue, Brooklyn, N. Y.
115	Oldbury Electro Chemical Co	Niagara Falls, N. Y.
116	Pacific By-Products Co	San Jose, Calif.
117	Palatine Aniline & Chemical Corporation	77 North Water Street, Poughkeepsie, N. Y.
118	Peerless Color Co	521 North Avenue, Plainfield, N. J.
119	Pennyslvania Coal Products Co	Petrolia, Pa.
120	Petroleum Chemical Corporation	52 William Street, New York, N. Y. (Barnsdall, Okla.).
121	Pharma-Chemical Corporation	233 Broadway, New York, N. Y. (Bayonne, N. J.)
122	Pittsburgh Plate Glass Co	P. O. Box 1575, Milwaukee, Wis.
123	Portland Gas & Coke Co	206 Sixth Street, Portland, Oreg.
124	Providence Laboratories (Inc.)	233 Charles Street, Providence, R. I.
125	Quaker Oats Co., The	141 West Jackson Boulevard, Chicago, Ill. (Cedar Rapids, Iowa.)
126	Roessler & Hasslacher Chemical Co., The	10 East Fortieth Street, New York, N. Y. (Perth Amboy, N. J.; Niagara Falls, N. Y.)
127	Rubber Service Laboratories Co., The	Nitro, W. Va.
128	Selden Co., The	McCartney Street, West End, Pittsburgh, Pa.
129	Seydel Chemical Co	86 Forest Street, Jersey City, N. J. (Nitro, W. Va.)
130	Sherwin-Williams Co., The	101 Prospect Avenue, Cleveland, Ohio. (Chicago, Ill.)
131	Simons (Inc.), Harold L	11-23 Forty-fourth Road, Long Island City, N. Y.
132	Sinclair & Valentine Co	11 St. Clair Place, New York, N. Y.
133	Solvay Process Co., The	Syracuse, N. Y. (Geddes, Onondago County, N. Y.)
134	Squibb & Sons, E. R	745 Fifth Avenue, New York, N. Y. (New Brunswick, N. J.; Brooklyn, N. Y.)
135	Standard Ultramarine Co., The	Huntington, W. Va.
136	Stange Co., William J	2549 Madison Street, Chicago, Ill.
137	Stokes & Smith Co. (Durite Plastics Co.)	Summerdale Avenue, near Roosevelt Boulevard, Philadelphia, Pa.
138	Sun Chemical & Color Co	309 Sussex Street, Harrison, N. J.
139	Swann Chemical Co	Birmingham, Ala. (Anniston, Ala.)
140	Synfleur Scientific Laboratories, Inc	33 Oakley Avenue, Monticello, N. Y.
141	Tar Products Corporation	Koppers Building, Pittsburgh, Pa. (Providence, R. I.; Hartford and New Haven, Conn.)

Directory of manufacturers of dyes and other synthetic organic chemicals, 1930—Con.

No.	Name of company	Office address (location of plant given in parentheses if not in same city as office)
142	Uhlich & Co. (Inc.) Paul	11 Cliff Street, New York, N. Y. (Brooklyn, N. Y.)
143	United States Industrial Chemical Co	60 East Forty-second Street, New York, N. Y. (South Baltimore, Md.)
144	Van Amerigen-Haebler (Inc.)	315 Fourth Avenue, New York, N. Y. (Elizabeth, N. J.)
145	Van Dyk and Co. (Inc.)	50 West Seventeenth Street, New York, N. Y. (Jersey City, N. J.)
146	Van Schaack Bros. Chemical Works (Inc.)	3358 Avondale Avenue, Chicago, Ill.
147	Verona Chemical Co	26 Verona Avenue, Newark, N. J.
148	Victor Chemical Works	343 South Dearborn Street, Chicago, Ill. (Chicago Heights, Ill.)
149	Wailes Dove-Hermiston Corporation	17 Battery Place, New York, N. Y. (Westfield, N. J.)
150	Warner-Jenkinson Manufacturing Co	2526 Baldwin Street, St. Louis, Mo.
151	Western Industries Co	110 Sutter Street, San Francisco, Calif. (Stege, Calif.)
152	White Chemical Co., The Wilbur	Owego, N. Y.
153	White Tar Co. of New Jersey (Inc.), The	1201 Koppers Building, Pittsburgh, Pa. (Kearny, N. J.; Cincinnati, Ohio.)
154	Wilhelm Co., The A	Third and Bern Streets, Reading, Pa.
155	Wolff-Alport Chemical Corporation	593 Irving Avenue, Brooklyn, N. Y.
156	Zinsser & Co. (Inc.)	Railroad Avenue, Hastings-upon-Hudson, N. Y.

UNITED STATES TARIFF COMMISSION

PIPE ORGANS AND PARTS THEREOF

REPORT TO THE PRESIDENT

ON

THE DIFFERENCES IN COSTS OF PRODUCTION OF PIPE ORGANS AND PARTS THEREOF, IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

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WITH APPENDIX
PROCLAMATION BY THE PRESIDENT

REPORT No. 20

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CONTENTS

	Page
Letter of transmittal	IV
Findings of the commission	1
Conclusion	3
Summary of information obtained in the investigation:	
Rates of duty	3
Scope of the investigation	3
Period covered by cost data	4
Production in the United States	4
Exports	4
Imports	5
Principal competing country	5
Comparability and basis of cost comparison	5
Costs of production	6
Comparison of material prices	6
Comparison of wage rates	6
Principal markets and transportation	7
Appendix: A proclamation by the President	11

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, June 16, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the report of an investigation made by the United States Tariff Commission of differences in costs of production in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, of pipe organs and parts thereof.

This report is accompanied by a summary of information obtained by the commission in the investigation.

The draft of the proclamation, in triplicate, is being submitted through the State Department, in compliance with Executive order of November 8, 1929.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

THE PRESIDENT,
The White House.

PIPE ORGANS

UNITED STATES TARIFF COMMISSION,
Washington, June 15, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of pipe organs and parts thereof in the United States and in the principal competing country for the purposes of section 336 of Title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation the commission finds that the duties fixed by the tariff act of 1930 (paragraph 1541(a)); namely, on pipe organs and parts thereof, 60 per cent ad valorem, and on pipe organs and parts thereof especially designed and constructed for installation and use in a particular church, or in a particular public auditorium at which it is not customary to charge an admission fee, which are imported for that specific use, and which are so installed and used within one year from the date of importation, 40 per cent ad valorem, should both be reduced to 35 per cent ad valorem.

The commission instituted this investigation on July 11, 1930, in compliance with Senate Resolution 313, dated July 3, 1930. Application No. 18 was merged with this investigation. Public notice of the hearing was given on January 17, 1931. At this hearing, held in Washington, D. C., on February 26, 1931, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. Pipe organs were formerly manufactured almost exclusively for use in churches. The development of moving pictures has resulted in a wide use of pipe organs in such theaters. With the introduction of talking pictures in 1928, the demand for pipe organs in theaters began to decline greatly, and many manufacturers making organs for theaters have now turned to making them for churches. The number of pipe organs manufactured in the United States increased from 1,151 in 1919 to 1,767 in 1923, and to 2,471 in 1927, but fell to 1,695 in 1929. Imports of pipe organs in recent years have consisted of organs for churches, the demand for moving-picture theaters having been supplied by domestic manufacturers. Imports of pipe organs decreased from 22 in 1926 to 10 in 1930. The duty on imports of all pipe organs under the act of 1922 was the same as the present duty on pipe organs for churches; namely, 40 per cent.

2. The year 1930 is a representative period for the purposes of this investigation.

3. Canada is the principal competing country.

4. No two pipe organs are identical. The average cost per organ is not therefore used as the basis of cost comparison between the product of the United States and that of the principal competing country. As there are differences in the quality of the pipe organs produced by different individual manufacturers, the commission has selected for cost comparison with the Canadian product, the product of manufacturers in the United States who make organs of the same kind and grade as those imported from Canada.

To insure comparability of the product of the Canadian and domestic companies selected for cost comparison, all special features not found in straight organs have been eliminated, such as unit organs, automatic player pipe organs, cases, display pipes, grilles, harps, and chimes.

Although the number of ranks or sets of pipes vary in different organs the cost per rank or set of pipes provides a satisfactory basis for comparing the like or similar foreign and domestic pipe organs. The commission finds that the ranks or sets of pipes in the straight organs imported from Canada are like or similar to the corresponding ranks or sets of pipes in the organs produced by the selected firms in the United States, and that the difference in costs of production of such sets of pipes in Canada and in the United States is representative, for the purposes of section 336, of the difference in costs of all pipe organs or parts thereof produced in the two countries whether for use in church or in a public auditorium at which it is not customary to charge an admission fee, or for other uses.

5. The sales of both domestic and imported organs are distributed widely throughout the United States, each organ being sold directly by the manufacturer to the church, theater, or other purchaser. For the purpose of comparing the cost of transportation of the domestic and the imported product from the center of production, the cities of New York, Chicago, and Los Angeles, and vicinities thereof, are deemed for the purposes of this investigation the principal markets in the United States.

6. Cost of production as ascertained in accordance with section 336:

(A) The average cost of production of ranks or sets of pipes for pipe organs and parts thereof in the United States was ascertained by the commission and the cost of production of corresponding ranks or sets of pipes and parts thereof in the principal competing country was also ascertained. Inasmuch as there is only one producer in the principal competing country, these costs can not be disclosed.

(B) The cost of transportation and other delivery charges of pipe organs and parts thereof from the centers of domestic production to the principal domestic markets during the period covered by the investigation and the corresponding costs from the center of production of the principal competing country to the same markets were ascertained.

(C) No other relevant factors constituting an advantage or disadvantage in competition were disclosed in the course of the investigation.

The excess of the cost of production, including transportation and other delivery charges to the principal markets in the United States, of the domestic product over the corresponding cost of the foreign

product, can not be disclosed without revealing confidential information of an individual producer.

CONCLUSION

The commission finds it shown by the investigation: (*a*) That the duties expressly fixed by statute; namely, on pipe organs and parts thereof, 60 per cent ad valorem, and on pipe organs and parts thereof especially designed and constructed for installation and use in a particular church, or in a particular public auditorium at which it is not customary to charge an admission fee, which are imported for that specific use, and which are so installed and used within one year from the date of importation, 40 per cent ad valorem, do not equalize the difference in the costs of production, including transportation and delivery to the principal markets in the United States, of the domestic article and the like or similar foreign article produced in the principal competing country;

(*b*) That a decrease of 25 per cent ad valorem in the duty of 60 per cent ad valorem and a decrease of 5 per cent ad valorem in the duty of 40 per cent ad valorem are necessary to equalize this difference; and

(*c*) That the rate of duty necessary to equalize the difference on all pipe organs and parts thereof is 35 per cent ad valorem.

Appended to this statement of findings is a summary of information obtained in the investigation.

Respectfully submitted,

HENRY P. FLETCHER,
Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
JOHN LEE COULTER,
ALFRED P. DENNIS,
EDGAR B. BROSSARD,
LINCOLN DIXON,
Commissioners.

SUMMARY OF INFORMATION OBTAINED IN THE INVESTIGATION WITH RESPECT TO PIPE ORGANS

Rates of Duty.

Under the act of 1922, all pipe organs and parts thereof were dutiable at 40 per cent ad valorem (par. 1443) as musical instruments, n. s. p. f. Under the act of 1930 (par. 1541(a)) pipe organs and parts thereof especially designed and constructed for installation and use in a particular church, or in a particular public auditorium at which it is not customary to charge an admission fee, which are imported for that specific use, and which are so installed and used within one year from the date of importation, are dutiable at 40 per cent ad valorem; all other pipe organs are dutiable at 60 per cent ad valorem.

Scope of the Investigation.

Cost and other records at six domestic plants and at one foreign plant were examined. The domestic plants included M. P. Moller & Co., Hagerstown, Md.; the Skinner Organ Co., Boston, Mass.;

the Hook and Hastings Co., Kendall Green, Mass.; the Austin Organ Co., Hartford, Conn.; the Aeolian Co., Garwood, N. J.; and the W. W. Kimball Co., Chicago, Ill. The Canadian company was Casavant Frères (Ltd.), of St. Hyacinthe, Quebec. For each of these companies technical, economic, and accounting data were obtained in such detail as to enable the commission to eliminate, in order to obtain a true comparison of like or similar products, the costs of specialties, such as harps, chimes, automatic players, cases, display pipes, and grilles.

The comparison of differences in costs of production was based on data obtained from only those domestic plants producing pipe organs most like or similar to the Canadian product.

Period Covered by Cost Data.

The domestic and foreign cost data obtained in this investigation are for the calendar year 1930, which was found to be a representative period for the purpose of this investigation. For the Canadian company it was necessary to use the fiscal year September 1, 1929, to September 1, 1930, because of the manner in which they kept their books. Indications are that there were no marked fluctuations in costs during this overlapping period.

Production in the United States.

The domestic production of pipe organs increased steadily from 1921 up to and including 1927. The introduction of talking pictures in 1928 seriously reduced demands for pipe organs in theaters, so that production in 1929 fell to 60 per cent of the total for 1927. During 1930 further decreases in production have taken place.

TABLE 1.—*Pipe organs: Production in the United States in specified years*

Year	Number of establishments	Number of pipe organs	Value of product
1923	59	1,767	$9,691,905
1925	57	1,955	12,808,220
1927	63	2,471	16,782,128
1929	61	1,695	10,914,249

Source: Reports of the Bureau of the Census, Department of Commerce.

Exports.

Export statistics show shipments of all kinds of organs, both reed and pipe. An analysis of the exports of 1929 was made in order to find out what proportion of the total consisted of pipe organs. It was found that of the 1,121 exported organs of all kinds valued at $308,477, 33, valued at $213,953, were pipe organs. They were shipped principally to England, Germany, Australia, and Canada. Most of them were pipe organs for use in theaters. More than 1,000 of the other organs exported in 1929 were reed organs, valued at $94,524. Table No. 2 gives the exports of all kinds of organs for the years specified.

TABLE 2.—*Organs: Exports from the United States*

Year	Number	Value	Year	Number	Value
1925	2004	$275,943	1928	1283	$501,874
1926	1416	221,295	1929	1121	308,477
1927	1686	387,141	1930	870	210,174

Imports.

Imports of pipe organs have been decreasing steadily in both number and value since 1926. All imports of pipe organs during 1929 and 1930 were from Canada and were sold to churches.

Table 3 shows the total imports of organs, which include both reed and pipe organs, and those from Canada, which are pipe organs.

TABLE 3.—*Organs: United States imports for consumption*

Year	Total organs		Pipe organs from Canada	
	Number	Value	Number	Value
1926	32	$257,531	22	$252,260
1927	30	242,171	17	222,910
1928	39	191,843	19	185,738
1929	17	183,286	11	182,002
1930 (Jan. 1–June 17)	11	28,518	3	27,193
1930 (June 18–Dec. 31)	12	86,106	7	85,478

Principal Competing Country.

Canada is the principal, and for several years has been the only competing country, in the pipe-organ industry. Casavant Frères (Ltd.), of St. Hyacinthe, Quebec, is the only pipe-organ builder in Canada exporting to the United States at present. The pipe organs produced by the domestic firms selected for final comparison are of the same quality as the product of the Canadian firm.

Comparability and Basis of Cost Comparison.

Since no two pipe organs are built alike, comparison must be made on some basis other than pipe organs as such because each organ is built to certain specifications to fit conditions existing in a particular building or to conform to the ideas of some organist. These conditions confront both domestic and Canadian builders. Another feature which makes comparability difficult is the fact that two rather distinct types of pipe organs are being built to-day. One is known as the straight pipe organ, the other as the unit pipe organ. In general the straight pipe organ is used in churches, whereas the unit pipe organ is most often found in theaters.

To assure comparability of the production of the Canadian and domestic companies selected for cost comparison, the following method was used.

1. In the final comparison costs were used only for those companies producing like or similar organs.

2. Cost comparison was limited to straight pipe organs.

3. Specialties, such as harps, chimes, automatic players, cases, display pipes, and grilles were eliminated.

4. The comparison was made on the basis of the average cost per rank or set of pipes.

The data obtained enabled the commission to study the relationship between the so-called straight and unit organs and to make other calculations and to conclude that the cost differences between the United States and the principal competing country for straight pipe organs were truly representative of cost differences for unit and other types of pipe organs. In fact some of the companies now producing church organs formerly were engaged in the production of theater or unit organs, using the same equipment, organization, methods, and materials.

In this manner costs for like or similar pipe organs were obtained on a comparable basis, and the cost per set of pipes of straight organs may be taken as a basis for determining differences in costs of production of completed pipe organs.

Because of the fact that some manufacturers completely assemble the pipe organs in the factory before shipment, and that others assemble only far enough to test valves and mechanisms but not to the extent of being able to play the organ, it was found advisable to figure costs on the pipe organ after installation.

Costs of Production.

Costs of production were obtained from books of record for both domestic and Canadian producers of pipe organs. The cost items cover material costs, labor costs, other factory expenses, overhead charges, such as heat, light, power, taxes, and interest on investment. In each plant a detailed analysis of material prices and wage rates and all general and overhead charges was made. A study was also made of installation expenses. Specifications of organs costed were examined, and a technical analysis of the number of stops, pipes, and other features in each organ was made.

As the costs obtained by the commission from Canada are for a single producer costs of production can be given only in percentages. The Canadian cost of production, including materials, labor, factory expense and overhead is 74 per cent of the corresponding costs of the domestic companies with which comparison is made.

Comparison of Material Prices.

Analysis of purchase invoices in the Canadian plant showed that many of the principal items, including the bulk of the woods used, brass and copper, leathers, electric motors and generators, and a few sundries, were obtained in the United States in the same markets patronized by the domestic manufacturers.

Quantity purchasing is an important feature in comparison of material prices for the various companies. In general, it may be said that the Canadian company purchases in the United States at about the same prices paid by the larger domestic plants. The general trend in material prices from 1929 to 1930 has been slightly lower, this trend applying equally to the Canadian and to the domestic plants.

Comparison of Wage Rates.

At each plant visited an analysis of the pay roll for several representative periods was made. The average hourly rate paid in the

Canadian plant was 63.56 per cent of the average hourly rate paid in the domestic plants selected. The ratio of labor to total costs for the Canadian plant was 42.14 per cent and for the domestic plants 33.93 per cent.

Principal Markets and Transportation.

There is no definitely established market for pipe organs. They are sold direct after competitive bidding to purchasers in all sections of the country. Analysis of sales for the various companies shows New York, Chicago, and Los Angeles, and the vicinities thereof, to be the principal markets. The average shipping weight of each organ was determined, and the transportation calculated from the factory to the principal markets.

APPENDIX

DECREASING RATES OF DUTY ON PIPE ORGANS

A PROCLAMATION

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

WHEREAS, under and by virtue of section 336 of Title III, Part II, of the act of Congress approved June 17, 1930 (46 Stat. 701) entitled "An act to provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, to protect American labor, and for other purposes," the United States Tariff Commission has investigated the differences in costs of production of, and all other facts and conditions enumerated in said section with respect to, pipe organs and parts thereof, being wholly or in part the growth or product of the United States and of and with respect to like or similar articles wholly or in part the growth or product of the principal competing country;

WHEREAS, in the course of said investigation a hearing was held, of which reasonable public notice was given and at which parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard;

WHEREAS the commission has reported to the President the results of said investigation and its findings with respect to such differences in costs of production;

WHEREAS the commission has found it shown by said investigation that the principal competing country is Canada, and that the duties expressly fixed by statute do not equalize the difference in the costs of production of the domestic articles and the like or similar foreign articles when produced in said principal competing country, and has specified in its report the decreases in the rates of duty expressly fixed by statute found by the commission to be shown by said investigation to be necessary to equalize such difference; and

WHEREAS, in the judgment of the President such rates of duty are shown by such investigation of the Tariff Commission to be necessary to equalize such difference in costs of production;

NOW, THEREFORE, I, HERBERT HOOVER, President of the United States of America, do hereby approve and proclaim the following rates of duty found to be shown by said investigation to be necessary to equalize such difference in costs of production:

A decrease in the rate of duty expressly fixed in paragraph 1541(*a*) of Title I of said act on pipe organs and parts thereof, from 60 per centum *ad valorem* to 35 per centum *ad valorem;*

And a decrease in the rate of duty expressly fixed in paragraph 1541(*a*) of Title I of said act on pipe organs and parts thereof especially designed and constructed for installation and use in a particular church, or in a particular public auditorium at which it is not customary to charge an admission fee, which are imported for that

specific use, and which are so installed and used within one year from the date of importation, from 40 per centum *ad valorem* to 35 per centum *ad valorem*.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 24″ day of June, in the year of our Lord nineteen hundred and thirty-one, and of the Independence of the United States of America the one hundred and fifty-fifth.

[SEAL.] HERBERT HOOVER.

By the President:

HENRY L. STIMSON,
Secretary of State.

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UNITED STATES TARIFF COMMISSION

CHEESE

EXCEPT OF AMERICAN OR CHEDDAR AND SWISS OR EMMENTHALER TYPES

REPORT TO THE PRESIDENT

ON

THE DIFFERENCES IN COSTS OF PRODUCTION OF CHEESE, EXCEPT OF AMERICAN OR CHEDDAR AND SWISS OR EMMENTHALER TYPES, IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

REPORT No. 21

Second Series

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CONTENTS

	Page
Letter of transmittal	v
Findings of the commission	1
Conclusions	4
Summary of information obtained in the investigation:	
Rates of duty	5
History of investigation	5
Production in the United States	6
Imports	7
Exports	10
Prices	11
Comparison of production and imports	12
Comparability and competitive conditions	14
Camembert	15
Brie	15
Limburger	15
Parmesan	15
Asiago	16
Romanello	16
Processed cheese	17
Feta types	17
Ricotta	17
Cost considerations	17

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, June 16, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the report of an investigation made by the United States Tariff Commission, for the purposes of section 336 of Title III of the tariff act of 1930, with respect to cheese, except of American or Cheddar and Swiss or Emmenthaler types.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

THE PRESIDENT,
The White House.

CHEESE

UNITED STATES TARIFF COMMISSION,
Washington, June 15, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation regarding cheese and the findings with respect thereto.

This report is unlike the usual report made by the commission under section 336 of Title III of the tariff act of 1930 in that it does not undertake to show the difference in costs of production as between the domestic and the foreign product. It describes the complex relations of cost, quality, and price existing among the numerous types of domestic and imported cheese. The commission regards the information submitted as valuable to the Congress in determining the proper duty or duties on this product.

The investigation undertaken in compliance with Senate Resolution 324, dated July 16, 1930, was ordered by the commission on July 22, 1930. An application for an investigation of Roquefort cheese, received on December 29, 1930, from a French agricultural association was merged with the investigation required by the Senate resolution.

Public notice of the hearing was given on January 17, 1931. At this hearing, held in Washington, D. C., on February 20, 1931, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

The order of the commission concerning the investigation with respect to cheese under section 336 (published on September 15, 1930) specified "cheese, except of American or Cheddar, and Swiss or Emmenthaler types." As hereinafter shown, the commission could find no proper basis on which to make findings with regard to the specific kinds of cheese covered by the order in accordance with which rates of duty could be fixed by virtue of section 336. The report consequently presents facts as to the types of cheese covered by the order of investigation and as to the relation existing between those types and the American or Cheddar and the Swiss or Emmenthaler types.

FINDINGS OF THE COMMISSION

1. Under the tariff act of 1922 the rate of duty on cheese was 5 cents per pound but not less than 25 per cent ad valorem. By presidential proclamation, effective July 8, 1927, the rate on cheese having the eye formation characteristic of the Swiss or Emmenthaler type was raised to 7½ cents per pound but not less than 37½ per cent ad-valorem; the rate on other types remained unchanged. The duty on cheese of all types under the tariff act of 1930 is 7 cents per pound but not less than 35 per cent ad valorem.

2. The total annual production of cheese in the United States in recent years has ranged from 400,000,000 to 500,000,000 pounds, with a general upward tendency. Imports have ranged from 60,000,000 pounds to 80,000,000 pounds annually, with a general upward trend to 1927 and a downward trend since that time.

3. The domestic production of cheese comprises a considerable number of types, and imports an even greater number of types. There are several domestic types that have practically no counterpart among the imported cheeses, and there are imports of numerous types not produced at all in the United States. Where the domestic and the imported cheese bear the same name, consumers and the trade often consider the one not the equal of the other in quality. Under these circumstances imported cheese as a whole can not be considered "like or similar" to domestic cheese as a whole in the sense in which these words are used in section 336 of the tariff act. Even if it were possible to ascertain the average cost of producing the entire domestic product and that of the entire imported product, the figures would not furnish a proper basis for determining a rate of duty uniform on all cheese.

4. The principle of equalizing costs would, if strictly applied to cheese, require many different rates on different types, some of which would be difficult or impossible to determine accurately, because there is no domestic production or no imports, or because of the lack of comparability between the domestic and foreign product bearing the same name. Furthermore, the technical difficulty of administration would be very serious, since it would be almost impossible either to define the various cheeses accurately or to determine whether certain importations conform to a given definition.

5. Apart from technical difficulties, the question as to the economic need of different rates on the several types and also as to the proper relation of the ad valorem minimum to the specific rate is to be judged only in the light of full information as to factors or conditions affecting competition among different types.

Under the tariff act of 1930, if the dutiable value of a given importation of cheese is 20 cents per pound or less the specific rate of 7 cents per pound applies, but if the dutiable value is more than 20 cents per pound the 35 per cent ad valorem minimum results in a higher equivalent specific rate per pound. In 1929 the average dutiable (foreign) value of all cheese imported was 29.3 cents per pound; in 1930 up to the effective date of the new tariff (June 18), 27.6 cents per pound; and during the remainder of that year, 26.1 cents. It may therefore be inferred that on much of the cheese imported on and after June 18, 1930, the 35 per cent minimum rate applied. The dutiable values per pound for many imported types are appreciably above the general averages just given.

6. By far the most important cheese produced in the United States is the so-called American or Cheddar, the output of which is substantially three-fourths of the total. It is therefore important to consider the nature of the competition of imported cheese with American Cheddar.

The duty is obviously a direct protection for the American Cheddar industry as far as it affects imports of Cheddar cheese itself. There is a large production of Cheddar cheese in Great Britain and in its English-speaking dominions, but imports of this type into the United States are almost exclusively from Canada. The total imports from Canada, most of which consist of Cheddar, have varied greatly. The maximum figure was reached in 1927, with 13,268,000 pounds. In 1929 imports dropped to 8,279,000 pounds, and in 1930, to 3,143,000 pounds, the greater part of which was brought in before the enactment of the new tariff in June.

In recent years, except in 1925 when the small imports from Canada apparently were not chiefly Cheddar cheese, the average foreign value of imports from Canada has ranged from 16.6 cents per pound in 1930 to 24.1 cents in 1928. On the basis of these prices the specific rate of 7 cents per pound would in most years have applied to the bulk of the imported Cheddar cheese, but in certain years the 35 per cent minimum would have applied, giving a specific equivalent ranging up to about 8 cents per pound.

7. The most important single cheese imported into the United States is the Emmenthaler type from Switzerland. Imports in 1929 were 19,600,000 pounds, and domestic production was 19,400,000 pounds.

The Tariff Commission made an investigation of the comparative cost of producing this type of cheese in the United States and in Switzerland for the year ended April 30, 1924. With an adjustment of the figures because of a difference in the quality of the foreign and the domestic product the cost difference was found to exceed the then existing duty. Upon a report of the results of the investigation to the President, the duty on cheese having the eye formation characteristic of the Swiss or Emmenthaler type was increased by proclamation. The tariff act of 1930, however, made the rate on this type uniform with that on all other cheeses, reducing slightly the rate fixed by proclamation.

The average foreign value of all imports of cheese from Switzerland is substantially the same as for all imports of the Emmenthaler type. In recent years the average value of imports from Switzerland has ranged from a maximum of 35.3 cents per pound in 1924 to a minimum of 31 cents in 1930. The present 35 per cent minimum applied to these average values gives an equivalent specific rate ranging from 11 to 12 cents per pound, as against the basic specific rate of 7 cents.

Imported Emmenthaler cheese would be considerably higher in price than Cheddar even if there were no duty, and after payment of duty it is much higher. For the most part the two types appeal to different tastes. In other words competition is indirect.

There is direct competition between the imported Emmenthaler and the American product of the same name, but it is restricted by reason of the preference of many consumers for the imported type. The imported Emmenthaler sells for a much higher price than the domestic, and yet imports have continued large.

8. There is a relatively large domestic production of two types of cheese; namely, brick and Münster, and cream and Neufchâtel (31,763,000 pounds and 34,405,000 pounds, respectively, in 1929), of which there are practically no corresponding imports. These cheeses are affected by the importation of foreign cheeses only indirectly as American or Cheddar cheese is affected.

9. For the large importation of certain foreign types, including principally Roquefort and many Italian cheeses, there is practically no corresponding domestic production. Imports of these types through the New York customs district for 1928–29 (fiscal year) were 18,594,000 pounds. (Of the total imports of cheese into the United States during that year, 68 per cent entered through New York.)

For the most part the foreign types mentioned command a much higher price than American Cheddar or than any other important type of domestic cheese. The average foreign value per pound for

the entire group in 1928–29 was nearly 30 cents per pound, and for two major types, Pecorino and other Roman, the average was more than 38 cents. After payment of the 35 per cent ad valorem duty the prices of several of these types are two or more times higher than the price of American Cheddar. They are intended mainly for special uses to which Cheddar is not adapted, or to appeal to the taste of the foreign-born population originating in the several countries from which these cheeses come. Since there is no domestic production of these types the duty on them may affect the American industry only to the extent to which they compete with the other types produced in the United States, especially Cheddar.

10. Apart from the Cheddar and Emmenthaler, there are a few types of cheese of which there are both domestic production and importation. The total domestic output of this group in 1929 was 17,400,000 pounds, and the total importation through the New York customs district during the fiscal year 1928–29 was 4,975,000 pounds. For Limburger, the domestic production is many times greater than the imports; for Camembert, Brie, processed Emmenthaler, and Asiago, the domestic production is considerably larger than the imports. On the other hand, the imports of Parmesan or Reggiano, Romanello, Feta, and Ricotta and other types are larger than the domestic production.

Imports of the whole group of cheeses here considered are not sufficient to affect materially the Cheddar cheese industry; moreover, what has just been said regarding the competition of other foreign cheeses with Cheddar applies alike to these types. The Summary of Information (pp. 5 to 18) sets forth the varying conditions affecting both the direct and indirect competition between these imported types and the domestic types of the same name. Consumers of some of them, as well as the trade, consider the American product equal to or better than the foreign product, whereas other consumers prefer the foreign product and willingly pay the higher price that it commands.

Because of the relatively low value of the Feta types of imported cheese (average foreign value in 1928–29, 18.5 cents per pound), the average unit value of the imports of this group, as a whole, is somewhat less than for the group mentioned in section 9, page 3 (in 1928–29 it was 24.5 cents per pound). For several individual types, however, the foreign value ranges from about 30 to nearly 40 cents per pound so that the specific equivalent of the ad valorem minimum is much above the specific rate of 7 cents, for some of them amounting to 14 cents.

Although there is to a certain extent direct competition between these types of cheese and the corresponding types produced in the United States, and although there is indirect competition in a measure with all types of cheese, the fact that they are relatively of minor importance, both in domestic production and in importation, should be taken into account in fixing a uniform duty on all cheeses.

CONCLUSIONS

In view of the facts set forth, the commission finds no proper basis for either a single cost comparison upon which the President may fix the rate of duty on all cheese covered by the order of the investigation (that is to say, on all cheese other than American or Cheddar and

Swiss or Emmenthaler types), or a series of separate cost comparisons upon which the President may fix a number of different rates of duty on different types. For each type of cheese there are one or more obstacles to the fixing of a rate of duty: (1) Lack of likeness or similarity between the foreign and domestic product; (2) lack of substantial importation of a type produced in the United States or of substantial production in the United States of a type imported; or (3) difficulty or impossibility of the customs officers distinguishing the given type of cheese from other closely related types. The commission submits the report in the belief that the Congress will find it useful in determining the proper policy with respect to the specific duty or duties on this product and with respect to the relation of the minimum ad valorem limit, if such limit is deemed necessary, to the specific rate.

Appended to this statement is a summary of information obtained in the investigation.

Respectfully submitted.

HENRY P. FLETCHER,
Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
JOHN LEE COULTER,
ALFRED P. DENNIS,
EDGAR B. BROSSARD,
LINCOLN DIXON,
Commissioners.

SUMMARY OF INFORMATION OBTAINED IN THE INVESTIGATION WITH RESPECT TO CHEESE

Rates of Duty.

Cheese has been dutiable under the last four general tariff acts and under the emergency tariff act of 1921 as follows:

Tariff act	Paragraph		Average ad valorem equivalent for period of the act
			Per cent
1930	710	7 cents per pound, but not less than 35 per cent ad valorem	[1] 35.83
1922 [2]	710	5 cents per pound, but not less than 25 per cent ad valorem	26.55
1921	22	23 per cent ad valorem	23.00
1913	196	20 per cent ad valorem	20.00
1909	246	6 cents per pound	33.58

[1] For the period June 18 to Dec. 31, 1930.
[2] Cheese having the eye formation characteristic of the Swiss or Emmenthaler type, 7½ cents per pound, but not less than 37½ per cent ad valorem. (Presidential proclamation, effective July 8, 1927.)

History of Investigation.

In compliance with Senate Resolution 324, dated July 16, 1930, the commission ordered on July 22, 1930, an investigation for the purposes of section 336 of the tariff act of 1930 of the costs of producing cheese.

The commission ascertained that the proponents of the Senate resolution were especially interested in varieties of cheese other than American or Cheddar and Swiss or Emmenthaler. Accordingly the order for the investigation specifically excluded "American or Cheddar and Swiss or Emmenthaler types."

In 1924, the commission made an extended investigation of the differences between domestic and foreign costs of production of the Emmenthaler type of cheese, and upon its report to the President a higher rate of duty was proclaimed than is prescribed by the tariff act of 1930. The proponents of the Senate resolution desired lower rates of duty on the special types of cheese included in the present investigation.

On December 4, 1930, the commission began field work to obtain information as to the physical characteristics, prices, markets, and centers and volume of domestic production of foreign types of cheese.

On December 29, 1930, an application was received from La Société Auxiliare de L'Agriculture and L'Industrie du Sud-ouest de la France for an investigation for the purposes of section 336 of the tariff act of 1930, looking toward a reduction in the rate of duty on Roquefort cheese. On January 20, 1931, the investigation requested was merged with that being conducted in response to Senate Resolution 324.

Public notice of the hearing was given on January 17, 1931. At this hearing, held in Washington, D. C. on February 20, 1931, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

Production in the United States.

The production of all types of domestic cheese increased from 394,700,000 pounds in 1923 to 484,000,000 pounds in 1929. The principal increase was in whole milk Cheddar (American), cream, and Neufchâtel types. The production of Swiss cheese (Emmenthaler type) decreased from 24,600,000 pounds in 1923 to 19,400,000 pounds in 1929. Italian types, the production of which averaged about 2,500,000 pounds for the six years ending with 1928, showed an increase to about 6,000,000 pounds in 1929.

Table 1 gives estimated figures for the production of the principal classes of cheese since 1923.

TABLE 1.—*Cheese: Production in the United States by types*

[Thousand pounds; i. e., 000 omitted]

Type	1923	1924	1925	1926	1927	1928	1929
Not covered in the order of investigation							
Cheddar (American)	312,286	328,770	353,331	340,226	313,055	331,201	376,339
Swiss, Emmenthaler type	24,555	21,844	23,457	20,883	18,141	16,718	19,406
Total	336,841	350,614	376,788	361,109	331,196	347,919	395,745
Covered in the order of investigation							
Brick and Münster	33,250	32,052	34,101	31,048	31,546	28,960	31,763
Cream and Neufchâtel	10,334	14,945	17,575	18,192	25,962	30,589	34,405
Limburger	7,100	9,734	9,163	9,639	8,842	7,437	8,568
Italian varieties	2,132	1,973	1,562	2,425	3,377	3,587	5,948
All other varieties	5,040	4,622	4,325	5,003	5,763	9,027	7,504
Total	57,856	63,326	66,726	66,307	75,490	79,600	88,188
Total, all cheese	394,697	413,940	443,514	427,416	406,686	437,519	483,933

Source: Division of dairy and poultry, Bureau of Agricultural Economics, U. S. Department of Agriculture.

The domestic production of the types of cheese included in the order of the commission increased from 57,856,000 pounds in 1923 to 88,188,000 pounds in 1929. In recent years these types have represented about 18 per cent of the total domestic production of cheese and have consisted largely (75 per cent) of brick, Münster, cream, and Neufchâtel. As there are no importations of brick or cream, and as imports of Münster and Neufchâtel are negligible, the significant imports are the Italian cheeses equivalent to 7 per cent; Limburger, 10 per cent; and other varieties, 8 per cent of the total domestic production of the types covered by the investigation.

Table 2 shows the production of all types of cheese made in the United States, by varieties and by principal producing States, 1929.

TABLE 2.—*Cheese: Domestic production by varieties and by principal producing States, 1929*

[Thousand pounds; i. e., 000 omitted]

Principal State	American or Cheddar	Swiss or Emmenthaler	Brick and Münster	Limburger	Cream and Neufchâtel	Italian varieties	All other varieties	Total
Wisconsin	242,841	16,419	30,219	5,163	8,356	1,521	658	305,172
New York	26,641	381	547	2,736	18,930	1,947	2,998	54,180
Oregon	12,585	----------	46	----------	351	1	1	12,984
Minnesota	10,979	----------	1	507	----------	----------	----------	11,487
Indiana	9,860	245	21	----------	----------	2	----------	10,128
Michigan	8,735	35	123	39	3	18	360	9,313
Idaho	7,327	337	----------	----------	----------	----------	----------	7,664
Illinois	6,070	519	393	8	4,978	104	239	12,311
California	4,582	239	14	9	776	2,146	1,534	9,300
Ohio	1,114	1,053	88	----------	2	----------	752	3,009
All other	45,605	178	311	106	1,009	209	967	48,385
Total	376,339	19,406	31,763	8,568	34,405	5,948	7,504	483,933

Source: Division of dairy and poultry, Bureau of Agricultural Economics, U. S. Department of Agriculture.

Imports.

Imports of all types of cheese into the United States increased steadily from the period of the World War, reaching the peak in 1927 of over 80,000,000 pounds. Since then they have decreased each year, dropping to 69,000,000 pounds in 1930. Italy supplied 48 per cent of total imports in 1930, and Switzerland, about 26 per cent. Imports from Canada, which are mainly Cheddar, decreased from 8,000,000 pounds in 1929 to 3,000,000 pounds in 1930.

Table 3 shows imports for consumption, 1923–1930.

TABLE 3.—*Cheese: Imports for consumption*

Calendar year	Rate of duty	Quantity	Value	Duty collected	Value per pound	Actual or computed ad valorem rate
		Pounds				*Per cent*
1923	5 cents per pound but not less than 25 per cent ad valorem.	61,103,991	$19,912,162	$5,019,327	$0.326	25.21
1924	do	59,812,306	17,787,585	4,492,390	.297	25.26
1925	do	62,620,250	17,559,591	4,442,456	.280	25.19
1926	do	75,868,142	20,375,899	5,218,485	.269	25.16
1927	do.[1]	80,796,326	24,700,517	6,515,233	.306	26.38
1928	do.[1]	79,946,664	24,300,551	6,839,124	.304	28.14
1929	do.[1]	76,343,639	22,379,821	6,382,409	.293	28.52
1930:						
Jan. 1 to June 17.	do.[1]	41,665,681	11,517,624	3,279,520	.276	28.47
June 18 to Dec. 31 [2].	7 cents per pound but not less than 35 per cent ad valorem.	27,292,844	7,121,728	2,551,554	.261	35.83

Source: Foreign Commerce and Navigation of the United States, and Monthly Summary of Foreign Commerce of the United States, U. S. Department of Commerce.

[1] By presidential proclamation, effective July 8, 1927, the rate of duty on Swiss or the Emmenthaler type was increased to 7½ cents per pound and not less than 37½ per cent ad valorem.
[2] Tariff act of 1930.

Under the act of 1930 imports for consumption during the period June 18 to December 31, were as follows:

	Quantity,	Value	Value per pound
	Pounds		
Emmenthaler with eye formation	8,396,855	$2,470,157	$0.294
Romano or Pecorino	5,791,086	1,627,502	.281
Parmesan or Reggiano	672,896	202,561	.301
Provoloni and Provolette	3,852,538	816,026	.212
Roquefort	874,057	316,333	.362
All other varieties	7,705,412	1,689,149	.219

Two-thirds of all imports into the United States for 1929, and over three-fourths of all types of cheese included in the order of investigation, entered through the New York customs district. Of the imports through that district during the year ended June 30, 1929, excluding Emmenthaler with the eye formation, 66 per cent was from Italy; 10.7 per cent from France; 6.6 per cent from Switzerland (Gruyère); 5.4 per cent from Greece; 3.4 per cent from the Netherlands; 1.7 per cent from Germany; 1.3 per cent from Norway and Sweden; and 4.9 per cent from other countries.

Table 4 shows the volume of imports, the average value per pound, and the specific rates equivalent to the 35 per cent ad valorem specified in the act of 1930.

TABLE 4.—*Cheese: Imports by principal varieties, entered through the New York customs district, during the year ended June 30, 1929*

Variety	Quantity	Value per pound	Specific rates equivalent to 35 per cent ad valorem
	Pounds	*Cents*	*Cents per pound*
Swiss types:			
Emmenthaler with eye formation	15,179,053	30.6	10.7
Gruyère	40,720	31.5	11.0
Gruyère in blocks	6,666	47.7	16.7
Gruyère in packages and portions	991,262	40.3	14.1
Sap Sago (green cheese)	25,905	19.5	6.8
Italian types:			
From sheep's milk—			
Pecorino	2,899,892	37.6	13.2
Listed as Romano or Roman	2,632,279	40.1	14.0
Romano Pecorino	1,112,372	39.8	13.9
Romano Sardo	263,495	38.8	12.2
Romano Lombardo	47,463	29.2	10.2
Romano Puglia	7,866	31.8	11.1
Romano Fetta	16,651	19.6	6.8
Romano Vero	6,016	42.8	15.0
Sardinian	378,278	35.1	12.2
Tuscan	81,656	37.3	13.1
Moliterno	72,265	30.7	10.7
Incanestrato and Canestrato	576,129	35.6	12.5
From cow's milk—			
Vacchino and Vacchino Romano	337,112	28.1	9.8
Provoloni and Provolette types	4,402,756	26.5	9.3
Provoloncini	19,700	27.1	9.5
Reggiano	1,071,585	36.1	12.6
Parmigiano (Parmesan)	252,553	35.8	12.0
Caciocavallo	248,686	34.3	12.1
Gorgonzola	343,711	23.4	8.2
Bel Paese	113,242	23.3	8.2
Dutch types:			
Edam	415,654	19.1	6.7
Gouda and Baby Gouda	66,245	23.9	8.4
French types:			
Roquefort (from France)	2,041,235	30.3	10.6
Bleu (cow's milk Roquefort)	136,749	23.9	8.4
Camembert	202,919	32.8	11.5
Camembert in tins	23,449	59.2	20.7
Greek types:			
Feta	1,350,606	18.1	6.3
Vize	456,828	25.5	8.9
Caskcaval	162,353	25.6	9.0
German types:			
Limburger	89,705	15.8	5.5

Table 5 shows the volume and value per pound of imports of cheese from 1923 to 1930, inclusive, by country of origin.

TABLE 5.—*Cheese: General imports of all types of cheese by countries*

Country of origin	1923	1924	1925	1926	1927	1928	1929	1930
	Thousand pounds; i. e., 000 omitted							
Italy	28,034	31,256	33,829	35,026	31,938	38,008	32,602	33,258
Switzerland	16,983	13,632	15,993	16,736	19,066	18,564	18,839	17,947
France	5,121	4,444	5,567	5,424	4,678	6,663	5,948	4,983
Canada	3,105	984	210	11,835	13,268	7,488	8,279	3,143
Netherlands	2,298	2,899	2,937	3,471	3.696	3,712	3,196	2,541
Greece	1,455	1,817	1,491	2,570	2,334	2,788	2,071	1,830
Other countries	7,424	4,144	2,376	3,355	4,816	4,180	5,447	4,609
Total	64,420	59,176	62,403	78,417	79,796	81,403	76,382	68,311
	Value per pound (cents)							
Italy	37.2	28.5	25.4	29.5	38.1	33.8	31.1	26.4
Switzerland	33.5	35.3	34.8	31.2	31.1	32.1	32.1	31.0
France	31.0	32.0	27.8	24.9	30.2	26.4	32.5	32.4
Canada	17.2	19.2	29.5	17.2	19.3	24.1	22.0	16.6
Netherlands	22.8	20.1	21.8	19.1	16.8	17.9	17.4	15.7
Greece	26.0	26.2	22.0	23.3	26.0	22.8	23.1	18.5
Other countries	23.5	22.6	25.8	26.0	24.6	24.8	21.4	22.5
Average	32.4	29.2	27.8	26.9	30.7	30.3	29.2	26.7

Source: Foreign Commerce and Navigation of the United States and Monthly Summary of Foreign Commerce of the United States, U. S. Department of Commerce.

Exports.

The peak of exportation of cheese since 1923 was reached in 1925, when 9,100,000 pounds were shipped abroad. Since then the volume of exports has gradually diminished, reaching the low of 1,964,000 pounds in 1930. The average value per pound of the cheese exported in 1930 was 25.7 cents as compared with 26.1 cents for cheese imported. Export statistics by types are not available but probably consist largely of American or Cheddar cheese.

TABLE 6.—*Cheese: Total quantity and value of exports*

Year	Quantity	Value	Value per pound	Year	Quantity	Value	Value per pound
	Pounds		*Cents*		*Pounds*		*Cents*
1923	8,331,321	$2,179,367	26.2	1927	3,410,353	$1,027,650	30.0
1924	4,299,127	1,117,915	26.0	1928	2,599,944	798,744	30.7
1925	9,190,054	2,419,754	26.3	1929	2,644,859	734,541	27.8
1926	3,902,579	1,114,661	28.6	1930	1,964,138	504,425	25.7

Source: Monthly Summary of Foreign Commerce of the United States, U. S. Department of Commerce

Table 7 shows exports of cheese to principal countries, 1923–1930.

TABLE 7.—*Cheese: Exports to principal countries*

[Thousand pounds; i. e., 000 omitted]

Country of destination	1923	1924	1925	1926	1927	1928	1929	1930
Canada	709	173	1,301	248	424	155	172	197
Panama	349	359	420	441	429	402	502	449
Other Central American countries	274	273	280	283	288	287	297	261
Mexico	920	872	1,001	797	613	522	576	325
Cuba	1,474	1,146	1,157	850	648	365	295	122
Other West Indies and Bermuda	605	444	615	591	381	334	321	257
South America	107	46	212	225	144	128	135	105
China, Hong Kong and Kwantung	213	180	329	286	250	141	116	41
Philippine Islands	98	100	112	115	118	149	122	134
Other countries	[1] 3,582	706	[2] 3,863	67	115	77	109	73
Total	8,331	4,299	9,190	3,903	3,410	2,560	2,645	1,964

Source: Foreign Commerce and Navigation of the United States and Monthly Summary of Foreign Commerce of the United States, U. S. Department of Commerce.

[1] 2,757,767 pounds to England.
[2] 3,204,426 pounds to Germany.

Prices.

New York wholesale prices are available for the principal types of cheese imported from Italy, Switzerland, France, and the Netherlands. Table 8 shows the average of quotations for 1929 of the principal imported types and monthly quotations for 1930 and 1931, to date.

TABLE 8.—*Cheese: Wholesale prices of leading types of imported cheese at New York*

[Cents per pound]

	Pecorino Romano	Romano Sardo	Reggiano or Parmesan [1]	Gorgonzola	Provoloni	Swiss		Edam 40 per cent	Roquefort
						Emmenthaler	Gruyère		
1929									
Average	68.0	([2])	57.0	37.0	43.0	48.6	61.5	32.7	51.3
1930									
Average	61.0	55.8	54.0	34.5	43.0	47.3	56.1	30.5	57.1
January	68.0	56.0	57.0	35.0	43.0	49.0	56.4	32.8	57.0
February	68.0	56.0	57.0	35.0	43.0	49.0	56.4	31.7	59.0
March	68.0	56.0	57.0	35.0	43.0	49.0	56.4	31.1	59.0
April	68.0	56.0	57.0	35.0	43.0	48.0	56.4	31.1	54.0
May	68.0	56.0	57.0	35.0	43.0	48.0	56.4	28.9	54.0
June	68.0	56.0	57.0	35.0	43.0	48.0	56.4	28.9	54.0
July	54.0	56.0	51.0	36.0	43.0	48.0	56.4	30.0	56.0
August	54.0	56.0	51.0	36.0	43.0	47.5	56.4	31.1	59.0
September	54.0	56.0	51.9	33.0	43.0	47.5	56.4	31.1	59.0
October	54.0	54.0	51.0	33.0	43.0	45.0	56.4	30.0	59.0
November	54.0	56.0	51.0	33.0	43.0	45.0	56.4	29.4	59.0
December	54.0	56.0	51.0	33.0	43.0	45.0	53.1	29.4	59.0
1931									
January	54.0	56.0	51.0	33.0	43.0	45.0	53.1	29.4	59.0
February	54.0	56.0	51.0	33.0	43.0	45.0	49.0	27.2	59.0
March	54.0	44.0	51.0	33.0	43.0	45.0	46.0	27.2	59.0
April	54.0	44.0	51.0	33.0	43.0	48.5	52.0	27.4	59.0
May	54.0	38.0	51.0	30.5	43.0	48.5	52.0	27.8	59.0

Source: Journal of Commerce (New York). Quotations as of Saturday nearest the middle of the month.

[1] For cheese 2 years old.
[2] No quotations.

Table 9 shows for foreign types of cheese produced in the United States the averages of quotations for 1929, and monthly quotations for 1930 and 1931, to date.

TABLE 9.—*Cheese: Wholesale quotations of foreign types of cheese of domestic production at New York*

[Cents per pound]

	Camembert in portions	Limburger	Münster	Neufchâtel No. 1	Brie in portions	Emmenthaler [1]
1929						
Average	75.8	32.5	27.0	40.3	74.5	37.7
1930						
Average	75.8	28.6	25.7	40.3	74.5	34.2
January	75.8	30.5	26.0	40.3	74.5	34.5
February	75.8	30.5	26.0	40.3	74.5	34.5
March	75.8	30.5	26.0	40.3	74.5	34.5
April	75.8	30.5	26.0	40.3	74.5	34.5
May	75.8	29.5	25.5	40.3	74.5	34.5
June	75.8	29.5	25.5	40.3	74.5	34.5
July	75.8	26.5	23.0	40.3	74.5	34.0
August	75.8	26.5	23.0	40.3	74.5	34.0
September	75.8	26.5	26.0	40.3	74.5	34.0
October	75.8	27.5	27.0	40.3	74.5	34.0
November	75.8	27.5	27.0	40.3	74.5	34.0
December	75.8	27.5	27.0	40.3	74.5	34.0
1931						
January	75.8	27.5	25.0	40.3	74.5	34.0
February	75.8	27.5	24.0	40.3	74.5	30.0
March	75.0	27.5	23.0	40.3	74.5	30.0
April	75.0	27.5	28.0	40.3	74.5	32.0
May	75.0	27.5	19.3	40.3	74.5	30.0

Source: Journal of Commerce (New York). Quotations as of Saturday nearest the middle of the month.

[1] Wisconsin cheese.

Since the production of Italian types of cheese in the United States is relatively small, and as only negligible quantities reach our eastern markets, no quotations of domestic Italian types are published at New York.

Information obtained from dealers at Chicago in December, 1930, indicates a range of 26 to 40 cents per pound for domestic Asiago and 31 to 42 cents for the imported cheese of that type; 37 cents per pound for domestic Parmesan and 44 to 52 cents for the imported; 19 to 24 cents for domestic Provoloni (fresh) and 35 to 40 cents for the imported (cured). Vacchino Romano, an imported variety made from cow's milk, was selling for 45 cents per pound, while domestic Romanello and California Jack, the nearest comparable types, at 26 to 27 cents.

Comparison of Production and Imports.

The types of cheese included in this investigation may be divided into three groups: (1) the principal foreign types not commercially produced in the United States; (2) types produced commercially in the United States but of which there are few or no imports; and (3) types of which there are both domestic commercial production and imports.

(1) Table 10 shows importations through the New York customs district for the year ended June 30, 1929, of the principal types of cheese not commercially produced in the United States. For these, a comparison of costs by types for the purpose of section 336 obviously would not be possible.

TABLE 10.—*Cheese: Imports by principal types, not produced in the United States, through the New York customs district for the year ended June 30, 1929*

Type	Country of origin	Imports	Value per pound
		Pounds	*Cents*
Pecorino [1]	Italy	4,043,000	38.1
Other Roman types [1]	do	4,020,000	38.4
Provoloni and similar types [2]	do	4,828,000	26.9
Gorgonzola	do	344,000	23.4
Vize types [1]	Greeee and Balkans	457,000	25.5
Roquefort [1]	Franee	2,046,000	30.2
Bleu [3]	do	155,000	24.2
Edam and Gouda	Netherlands	538,000	19.8
Caskeaval and similar types [1]	Greeee and Balkans	301,000	23.3
Sap Sago	Switzerland	14,000	19.4
Scandinavian types [4]	Norway and Sweden	199,000	20.8
Other types		1,649,000	26.0
Total and average		18,594,000	29.7

Source: Analysis of invoices at New York City.

[1] Manufaetured from sheep's milk.
[2] Practieally all of the domestie produetion is eonsumed fresh and not comparable with the imported types.
[3] A Roquefort type made from eow's milk.
[4] Considerable quantities of goat's milk cheese.

Of the 23,600,000 pounds of imported cheese, except Emmenthaler, entered through New York in the year ended June 30, 1929, and for which an analysis was made, 18,600,000 pounds, or about 80 per cent, were of types not produced in the United States. Outstanding among these are Pecorino and other Roman varieties, Provoloni and similar types, from Italy; Roquefort, from France; Edam and Gouda, from the Netherlands; and some Scandinavian types. Pecorino and other Roman types are hard cheese used largely for grating, whereas the other types are for table use. A number of these cheeses are in special demand by people of Italian or Greek origin who are willing to pay a considerable premium to obtain a particular type. The principal markets for these cheeses are New York, Chicago, and other large cities where there is a concentration of population of southern European origin.

(2) Brick, Münster, and Neufchâtel are foreign types produced commercially in the United States of which there is practically no importation. Brick cheese, resembling Limburger and Emmenthaler, is a purely domestic product somewhat like the German cheese, "Backstein," and may have been developed from it. It is strong and sweetish and has many small round eyes or holes. It is put up in brick-shaped loaves weighing about 5 pounds. About 95 per cent of the domestic product is manufactured in Wisconsin.

Münster cheese originated in Germany near the city from which it takes its name. Production statistics are available only in combination with brick. (See Table 1.) Imports through New York for the fiscal year 1929 were only about 1,000 pounds. Domestic Münster is made from whole milk in Limburger or brick cheese factories, the process of manufacture being more like that of Limburger than of brick. It has the blended flavor of Limburger and brick.

Neufchâtel is a soft cheese resembling cottage or cream cheese in texture. Originating in France, it has gained wide recognition for quality. The French type is a more ripened cheese than the domestic because American manufacturers omit some of the French processes

of curing. Domestic Neufchâtel is soft, having a clean, sour-milk flavor, and is highly perishable unless kept under refrigeration. Imports of French Neufchâtel are negligible.

(3) Table 11 affords a comparison of domestic cheese of foreign types and imports of cheese of the same name. Statistics of production do not separate Camembert and Brie. Imported Bel Paese, though not produced in the United States, is included for comparison in this group because it competes with domestic Brie.

TABLE 11.—*Cheese: Comparisons of the principal foreign types produced in the United States with imports through the New York customs district*

Type	Principal country of origin	Domestic production calendar year 1929	Imports		Apparent consumption (production plus imports)	Ratio of imports to consumption
			Total quantity entered through New York customs district year ended June 30, 1929	Value per pound		
		Pounds	*Pounds*	*Cents*	*Pounds*	*Per ct.*
Camembert	France	1, 227, 000	227, 000	36. 6	1, 567, 000	22
Brie	do					
Bel Paese	Italy		113, 000	23. 3		
Limburger	Germany	8, 568, 000	90, 000	15. 8	8, 658, 000	1
Parmesan or Reggiano	Italy	245, 000	1, 324, 000	36. 0	1, 569, 000	84
Asiago	do	694, 000	27, 000	30. 0	721, 000	4
Romanello (Vacchino Romano)	do	220, 000	404, 000	29. 3	624, 000	65
Feta types	Greece, Italy	[1] 335, 000	1, 405, 000	18. 5	1, 740, 000	81
Processed Swiss	France, Switzerland	[2] 6, 000, 000	1, 195, 000	38. 9	7, 195, 000	15
Ricotta, dry	Italy	116, 000	189, 000	19. 2	305, 000	62
Total		17, 405, 000	4, 974, 000	24. 5	22, 379, 000	

Source: Production data from U. S. Department of Agriculture, State Departments of Agriculture, and (by correspondence) from producers. Import data from an analysis of invoices at New York.

[1] 85 per cent produced from goat's milk and 15 per cent from sheep's milk.
[2] Estimated production of processed Swiss.

The comparison given in Table 11 indicates that imports of those types which are produced in the United States in commercial quantities are relatively small and that production in the United States of those types imported in relatively large quantities, is unimportant. There has been a strong demand for processed Swiss (Petit Gruyère) put up in packages, imports of which have steadily increased in the last few years.

The production of all foreign types (except Swiss or Emmenthaler type) in the United States, 17,405,000 pounds, was but 3.6 per cent of the total production of domestic cheese in 1929 as shown in Table 1. Imports of foreign types having comparable domestic production, 4,974,000 pounds, constituted about 6 per cent of the total imports for this period and were equal to 29 per cent of the domestic production of foreign types.

Comparability and Competitive Conditions.

Since 1920, the production of foreign types of cheese in the United States has been a growing industry. The manufacture of Limburger and Camembert was well established prior to 1920, and at this early period the quality of the domestic product was so well recognized

that competition seriously curtailed imports of these varieties. During the war period attempts were made to produce some of the Italian types in California, Pennsylvania, and New York State, but the industry did not gain much headway until recent years. After the war, Italian cheesemakers were brought over, and factories were established in northern Wisconsin where climatic and pasture conditions are favorable to the making of these types of cheese. There are now seven or eight factories in northern Wisconsin making Asiago, Parmesan or Reggiano, and Caciocavalla varieties.

Until recently the production of cheeses of foreign types in California was insignificant. In 1927 only 197,000 pounds of the Italian varieties were reported as produced in that State, whereas in 1929, more than 2,000,000 pounds were produced of which 800,000 pounds were of the Jack or Monterey types, nearly 500,000 pounds of the Mexican type, and over 200,000 pounds of Roman types. This cheese is consumed principally on the Pacific coast.

The discussion will be confined to those foreign types of which there is domestic production.

Camembert.—Domestic Camembert, a soft cheese ripened by means of molds and by bacteria, is directly competitive with the imported and goes into the same trade. It is generally conceded to be the equal of the best imported cheese and excels the imported in uniformity. Some dealers maintain that the curing of imported Camembert is better than that of the domestic, but the demand for the domestic and a comparison of recent prices bear out the claims of equality made by domestic producers.

During the 25 years of domestic manufacture, production has reached more than 1,000,000 pounds. Prices for the imported range from $4.10 to $4.60 per dozen 8-ounce boxes and the domestic from $4.35 to $5.35 per dozen boxes, according to whether it is whole cheese or divided in portions. This is a range of 68 to 77 cents per pound for the imported and 72 to 89 cents per pound for the domestic.

Brie.—Domestic Brie is somewhat similar in manufacture to Camembert. Separate production statistics for this cheese are not available, but are estimated to be less than 300,000 pounds. Dealers in New York say that Bel Paese from Italy and Oka (Port de Salut) from Canada are competitive with American Brie. Brie is known under a series of names—Brie, d'Isigny, Brie d'Isigny—and is made in many factories scattered over several States. French Brie is a decidedly different cheese and not comparable with the domestic product.

Limburger.—Domestic manufacturers supply almost all the Limburger consumed in the United States, the domestic production in 1929 amounting to 8,600,000 pounds as compared with imports of 90,000 pounds. Sixty per cent of the domestic production comes from Wisconsin and 32 per cent from New York. Dealers are in agreement that in quality the domestic product is at least the equal of the imported, the latter being low in butterfat and too strong to suit the taste of American consumers. Recent prices at New York are around 27 cents per pound for both the domestic and imported.

Parmesan.—Parmesan cheese, a very hard cheese made from cow's milk, is a northern Italian type, and, grated, is used as a condiment with soups and on spaghetti and macaroni. It is made in large loaves weighing from 18 to 20 pounds requiring about two years

for proper curing. It is also put up in loaves of 40 to 50 pounds each and sold under the name Reggiano. Reggiano from Reggio, Italy, is of the same quality as Parmesan imported from Parma, Italy. Imports have been larger than domestic production, in 1929 amounting to 1,324,000 pounds as compared with a domestic production of about 300,000 pounds. Domestic Parmesan is manufactured chiefly in Wisconsin and is distributed not only in Chicago but also in other midwestern cities, to southern and to some eastern points, and is sold to wholesale grocers and to hotels and restaurants in competition with the imported product.

The use of grated hard cheese has been increasing in recent years in the United States, particularly in hotels and restaurants. The imported Pecorino types produced from sheep's milk are used almost exclusively by the people coming from countries bordering the Mediterranean who prefer cheese with a strong, piquant flavor. Because of the milder flavor and sweetish taste, Parmesan or Reggiano is more widely known and used in American households.

Recent price quotations indicate that the domestic undersells the foreign of this type. Imported Parmesan and Reggiano were selling at Chicago in December, 1930, at 44 to 52 cents per pound, according to grade, whereas the domestic was being sold f. o. b. factory in Wisconsin at 37 cents per pound.

Asiago.—This cheese is now produced in the United States in greater quantity than it is imported, production being estimated at from 700,000 pounds to 1,000,000 pounds as compared with 27,000 pounds imported through New York for the fiscal year 1929. It is manufactured in loaves weighing about 18 pounds each, and until nine months old is sold as fresh or medium-cured for table use, over nine months for grating. In appearance it resembles the common American type, but its flavor is quite distinct from Cheddar. It is marketed principally in Chicago and throughout the Central West, some being shipped by parcel post directly from the small producers to the final consumers. The consumer demand seems to be strongly in favor of the domestic product, which may be partly due to the fact that the imported cheese has less butterfat.

From the point of view of prices, the domestic Asiago competes directly with the imported. The price range at Chicago in December, 1930, was 26 to 40 cents per pound for the domestic as compared with 31 to 42 cents per pound for the imported.

Romanello.—Domestic Romanello, closely related to Jack or Monterey of California, is a small cheese which after being cured for about one year is used for grating. Of the types produced in the United States, Romanello is probably nearest to Vacchino Romano, an imported cheese made from cow's milk. It is lower in price than the Romano varieties made from sheep's milk. The manufacture of this type has been considered so unprofitable in the Eastern States that production has entirely ceased in New York State and practically so in Wisconsin. The domestic production of Romanello in California and northern Wisconsin for 1929 was 200,000 pounds as compared with imports of Vacchino Romano of 455,000 pounds. Romanello and California Jack were quoted in Chicago in December, 1930, at 27 cents per pound as compared with imported Vacchino at 40 cents and imported Parmesan at 45 cents.

Processed cheese.—About 150,000,000 pounds of the domestic production is processed; that is, original cheese which has been ground, melted, and run into small molds. Sometimes several types are blended in processing. The package is usually half pound or quarter pound—a size convenient for use. The principal domestic types processed are American, brick, Swiss, and Limburger; the principal imported type processed is Petit Gruyère from Switzerland. The domestic processed Swiss (processed from Emmenthaler) is produced chiefly in Wisconsin. The production of processed Swiss in the United States is estimated to be about 6,000,000 pounds as compared with imports of 1,200,000 pounds. In December, 1930, when domestic processed Swiss was being quoted in New York at 33⅓ cents per pound for half-pound cartons, and 38½ cents per pound for quarter-pound cartons, the imported Gruyère (Petit Gruyère) was quoted at 57 cents per pound for 8-ounce cartons containing one whole cheese, and 66⅔ cents per pound for cartons containing 12 portions.

Feta types.—Several varieties of cheese are imported from Greece and the Balkan States, principally Feta, Vize or "Head cheese," and Caskcaval, all made from sheep's milk. The nearest comparable products of the United States are produced in southern Colorado, made chiefly from goat's milk, and sold under the names "Feta, Casere, Myjithra, and Canestrato." The production of these types is about 300,000 pounds as compared with imports of about 1,400,000 pounds. This cheese is consumed by miners in Colorado also by Greeks and Sicilians in San Francisco, Los Angeles, and New Orleans, and other southern cities. Practically none of these types reach eastern markets. They sell for 24 to 30 cents per pound in Colorado, and the imported, duty paid, at New York at 21 to 35 cents per pound.

Ricotta.—Domestic Ricotta is a by-product made from whey usually from the production of Asiago and Parmesan cheese. It is sold for the most part as fresh cheese, but there is some demand for dried Ricotta, produced by allowing the fresh cheese to remain in a drying room for a certain period. Ricotta is a low-priced cheese, the fresh selling for about 12 cents per pound and the dried product for about 17 cents. The wholesale price of the imported is around 30 cents per pound.

Cost Considerations.

A cost investigation with a view to changing the rates of duty would either be for the purpose of obtaining data for making a change in the present general rate of duty on all types of cheese combined, or else for determining costs for specific types of cheese for the purpose of setting up a new classification with separate rates of duty.

In an investigation looking toward a change in the rate for the entire group, domestic cost data would have to be obtained for the important types produced in this country. For comparison with the average domestic cost, the average cost of various imported cheeses would have to be obtained either on the basis of invoice data or through investigation in the foreign producing countries. To determine the average domestic costs and the average foreign costs would involve difficult questions of weighting, and would necessitate throwing together in one comparison commodities not closely similar; the domestic group would be quite different in make-up from that of a group of imported cheeses. It is doubtful if the rate of duty evolved

by combining costs for different types of cheese, and possibly for different countries, would be representative of the whole group or equalize the competitive costs of production of domestic and imported cheese.

Investigations looking toward a separate classification by types of cheese would raise practical difficulties, for, as already mentioned, many of the imported cheeses are not commercially produced in the United States. Aside from Cheddar and Emmenthaler, which are excluded from this investigation, a cost comparison would be possible only for a few minor types such as Camembert and Asiago. The setting up of a new classification would also result in serious administrative problems because of the difficulty of defining accurately the cheeses to be included under each of the separate rates.

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UNITED STATES TARIFF COMMISSION

OLIVE OIL

REPORT TO THE PRESIDENT

ON

THE DIFFERENCES IN COSTS OF PRODUCTION OF OLIVE OIL IN BULK AND PACKAGED, IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

REPORT No. 22

Second Series

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CONTENTS

	Page
Letter of transmittal	v
Findings of the commission with respect to bulk olive oil	1
Findings of the commission with respect to packaged oil	3
Conclusion	4
Summary of information obtained in the investigation:	
Rates of duty	5
Domestic production—	
Bulk olive oil	6
Packaged olive oil	8
Exports	8
Imports	8
United States consumption	9
Principal competing country	10
Foreign production	10
Competitive conditions—	
Bulk olive oil	10
Packaged olive oil—	
Principal markets for and transportation of packaged oil	11
Cost of production—	
Domestic bulk olive oil	12
Domestic packaged olive oil	12
Foreign packaged olive oil	13
Comparison of domestic and foreign costs of packaged olive oil	13
Appendix: A proclamation by the President	19

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, June 16, 1931.

MY DEAR MR. PRESIDENT:

I have the honor to transmit herewith the report of an investigation made by the United States Tariff Commission of differences in costs of production of olive oil in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930.

This report is accompanied by a summary of information obtained by the commission in the investigation.

The draft of the proclamation, in triplicate, is being submitted through the State Department, in compliance with Executive order of November 8, 1929.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

THE PRESIDENT,
The White House.

OLIVE OIL

UNITED STATES TARIFF COMMISSION,
Washington, June 15, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of so-called bulk olive oil and so-called packaged olive oil in the United States and in the principal competing country for the purposes of section 336 of Title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation the commission finds: (1) That a comparison of the costs of production in the United States and in the principal competing country of olive oil, not specially provided for, dutiable under the act of 1930 at 6½ cents per pound, does not furnish an adequate or proper basis for determining the duty under section 336; and (2) that the present rate of duty on olive oil weighing with the immediate container less than 40 pounds, fixed by the tariff act of 1930; namely, 9½ cents per pound on contents and container, should be reduced to 8 cents per pound on contents and container.

The commission instituted this investigation July 22, 1930, in compliance with Senate Resolution No. 324, dated July 16, 1930. Public notice of the hearing was given on December 23, 1930. At this hearing, held in Washington, D. C., on February 3, 1931, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION WITH RESPECT TO BULK OLIVE OIL

1. The tariff act distinguishes between olive oil weighing with the immediate container less than 40 pounds and olive oil, not specially provided for. The latter, which is ordinarily handled in barrels or steel drums or in cans containing six gallons, is commonly called bulk olive oil. The former, commonly called packaged oil, is put up in cans or bottles usually holding one gallon or less.

2. The rate of duty on bulk olive oil under the acts of 1922 and 1930 has been 6½ cents per pound, equal to 49½ cents per gallon. Under the act of 1909 the rate was 40 cents per gallon and under that of 1913, 20 cents. The duty under the acts of 1922 and 1930 has been equal to from 28 to 55 per cent of the foreign value, the higher ad valorem ratios applying in 1930 and 1931.

3. The domestic production of olive oil is relatively small. On the average for the six years 1925 to 1930 domestic production furnished less than 2 per cent of the consumption of the United States, and less than one-fifth of the consumption of the State of California, the

only source of domestic production. The increase in the duty in 1922 (the rate had already been raised to 40 cents a gallon in the emergency tariff act of 1921) had little effect in causing additional planting of olive trees. The increase in the production of olives which has occurred since that time has been due principally to the coming into bearing of trees planted before 1921 and to the greater age of the bearing trees.

4. The growing of olive trees in the United States is designed primarily for the production of olives for canning as whole ripe olives. The olives used for oil are for the most part in the nature of a by-product, consisting of those of small size or imperfect form and condition. The increase in the acreage planted to olives which took place prior to about 1921 was chiefly due to the growing demand for canned ripe olives. With the further increase in the production of olives which has occurred subsequently by reason of the greater age of the trees, it has been found advantageous to convert a somewhat larger proportion than formerly of the olives into oil. In recent years the value of the domestic production of canned ripe olives has averaged about $3,500,000 annually, whereas the value of oil crushed from domestic olives was about 10 per cent of this amount.

5. The average annual value of the olive oil produced in the United States during recent years has ranged from about $200,000 to $400,000. The annual value of imports during the five years 1926 to 1930, inclusive, has averaged $12,430,000, and the amount of duties collected on all imported olive oil, including both bulk oil and that in packages during the same period, has averaged more than $6,000,000 annually.

6. A comparison between the cost of production of domestic olive oil and the corresponding cost of imported olive oil would not furnish a proper basis for fixing the duty on bulk oil in accordance with section 336 of the tariff act of 1930, for the following reason:

Much the greatest factor, about two-thirds, in the cost of domestic oil is the price paid for the olives for crushing. The olives crushed for oil are not the major product of the olive growers but are substantially a by-product. The price received by the grower for olives for crushing, therefore, does not depend on the average cost of production of all olives. It depends entirely on what the crushers pay, and this in turn depends upon the price which the crushers receive for oil. In view of the fact that about 98 per cent of the entire consumption of olive oil is supplied by imports, the price at which the domestic oil is sold depends on the price of imported oil. That price is affected by the existing duty. By reason of this chain of causal relations the cost of olive oil produced in the United States is itself substantially determined by the rate of duty on imported oil.

7. It was found to be impracticable to ascertain the costs of growing domestic olives for oil for the reason that such olives in the United States are a variable by-product of the olive industry.

8. In view of the foregoing facts the commission finds that the duty on olive oil in bulk can not be fixed in accordance with the procedure prescribed by section 336 of the tariff act of 1930. This is a matter of public policy to be determined by the Congress. The commission hopes, however, that the information it has secured and set forth in the attached summary may be of value in this connection.

FINDINGS OF THE COMMISSION WITH RESPECT TO PACKAGED OLIVE OIL

1. In addition to the production of olive oil itself in the United States there is a domestic industry engaged in packing olive oil, chiefly the imported product, in containers for retail sale. The duty on packaged olive oil is higher than on bulk oil, and the differential is in the nature of a protection to the domestic packaging industry.

2. The rate of duty on olive oil in packages, 9½ cents per pound including the weight of the immediate container, represents different rates per gallon on the oil content of the package, varying according to the size of the package. Expressed in terms of a gallon of oil the duty on bulk oil under the act of 1930 is 49.5 cents, and the duty on oil in 1-gallon cans about 81 cents, a difference of 31½ cents per gallon. Under the act of 1922 the corresponding difference was 14½ cents per gallon, and under the acts of 1909, 1913, and 1921 it was 10 cents per gallon.

3. The quantity of olive oil packaged in the United States is not definitely known, but it may be estimated for the 3-year period 1928–30 at about 2,800,000 gallons annually. The imports of packaged oil during that period averaged about 5,700,000 gallons annually. During the period 1922 to 1929 there was relatively little change in the ratio between domestic production and imports of packaged oil. Since June 18, 1930, when the new rate on packaged oil went into effect, the imports of packaged oil have decreased relatively to the imports of bulk oil. Whereas during 1929 the imports of oil in packages were about 50 per cent greater than the imports of bulk oil, during the period since June 18, 1930, the former have been considerably less than the latter.

4. The 3-year period 1928–1930 is a representative period and has been used as the basis of comparison for packaged oil in this investigation.

5. Italy is the principal competing country.

6. Domestic packers of olive oil use as material oil imported from several different countries. A large fraction is imported from Italy, and this may consist either of oil produced in Italy or of oil blended there with the product imported into Italy from other countries. Domestic packers also import oil from Spain, Tunis, and other sources. Whether by reason of actual or supposed differences in quality, oil imported from different countries commands different prices. For a proper comparison with the packaged olive oil imported from Italy it is therefore necessary to base the material cost of the domestic product on oil imported from Italy. Obviously, olive oil imported from Italy in a can of a given size is like or similar to olive oil in a can of the same size packed in the United States and containing olive oil imported from Italy.

7. The principal establishments packing oil in the United States are situated in or near the North Atlantic seaboard cities. Consequently there is no appreciable difference in the cost of transportation to the principal markets in the United States as between imported oil and domestic oil in packages other than the transportation cost from the foreign centers of production to seaports of the United States.

8. The cost of production of packaged olive oil, as defined in section 336 (h) (4), was not readily ascertainable for the principal competing country, and the commission, in accordance with section 336 (e) (2) (A), accepted as evidence thereof the weighted average invoice price of imports from that country, and these invoice prices were confirmed by the confidential cost data submitted under oath by representatives of foreign producers.

9. Cost of production ascertained in accordance with section 336:

(A) The weighted average cost of production in the United States of packaged olive oil weighing with the immediate container less than 40 pounds and containing oil like or similar to the oil in similar containers imported from the principal competing country was 25.6 cents per pound for the period covered by the investigation. The corresponding cost of production of oil in such containers in the principal competing country, including transportation to the Italian seaports, as evidenced by invoice prices, was 16.7 cents per pound.

(B) The cost of transportation, including marine insurance, of packaged olive oil from the seaports of the principal competing country to the North Atlantic seaport cities was 0.9 cent per pound.

(C) No other relevant factors constituting an advantage or disadvantage of competition were disclosed in the course of this investigation.

The excess of the cost of production, including transportation and other delivery charges to the principal market in the United States, of the domestic product over the corresponding cost of the foreign product during the period covered by the investigation was thus 8 cents per pound.

CONCLUSION

The commission finds it shown by the investigation (*a*) that the duty of 9½ cents per pound expressly fixed by statute on olive oil weighing with the immediate container less than 40 pounds does not equalize the difference in the costs of production, including transportation and delivery to the principal market in the United States, of the said domestic article and the like or similar foreign article produced in the principal competing country; (*b*) that a decrease in the duty of 1.5 cents per pound is necessary to equalize this difference; and (*c*) that the rate of duty necessary to equalize said difference is 8 cents per pound on contents and container.

The rate of duty thus found necessary to equalize the difference in costs of production is in the case of a can containing 1 gallon equal to 68 cents per gallon as compared with the present rate of 81 cents per gallon.

Appended to this statement of findings is a summary of information obtained in the investigation.

Respectfully submitted.

HENRY P. FLETCHER, *Chairman.*
THOMAS WALKER PAGE, *Vice Chairman.*
JOHN LEE COULTER,
ALFRED P. DENNIS,
EDGAR B. BROSSARD,
LINCOLN DIXON,
Commissioners.

SUMMARY OF INFORMATION OBTAINED IN THE COMMISSION'S INVESTIGATION WITH RESPECT TO OLIVE OIL

The character of olive oil and the important part that it has played in the diet of the great Mediterranean civilizations are too well known to require comment. The production in the Mediterranean countries exceeds 200,000,000 gallons per year with the consumption in the United States now exceeding 11,000,000 gallons annually. This country is dependent upon imports for fully 98 per cent of its supplies. Domestic production so far has been limited to the State of California. The trade distinguishes between bulk and packaged olive oil. For purposes of distribution olive oil is necessarily put in containers, whether great or small. The trade bases an artificial distinction between bulk and packaged oil upon the size of the container.

RATES OF DUTY

The distinction between bulk and packaged oil has been recognized since the tariff act of 1897 taxed olive oil in small packages at 10 cents per gallon more than olive oil imported in bulk. This differential of 10 cents per gallon was maintained in the subsequent tariff acts of 1909, 1913, and in the emergency tariff act of 1921.

The tariff act of 1922 was the first to impose a duty on a per pound basis. In that act the rate on bulk olive oil was 6½ cents per pound and on olive oil weighing with the immediate container less than 40 pounds, 7½ cents per pound. The act of 1930 left bulk olive oil at 6½ cents per pound, but on olive oil weighing with the immediate container less than 40 pounds, increased the rate to 9½ cents per pound.

Confusion as to the incidence of duty per gallon or fractions thereof may be cleared up at this point by calculating that a gallon of olive oil in a 1-gallon can has a total weight with can of 8.5 pounds. In other words, a duty of 9½ cents per pound on oil in 1-gallon cans amounts to 81 cents per gallon.

Table 1 shows a comparison of the duty per gallon on olive oil imported in bulk and on olive oil imported in small containers under the tariff acts of 1909 to 1930, inclusive.

TABLE 1.—*Olive oil: Comparison of duty per gallon under the tariff acts of 1909 to 1930, inclusive*

Tariff act	Olive oil in bulk	Olive oil in containers [1]	Tariff act	Olive oil in bulk	Olive oil in containers [1]
	Cents per gallon	*Cents per gallon*		*Cents per gallon*	*Cents per gallon*
1909	40	50	1922	49.5	[2] 64
1913	20	30	1930	49.5	[2] 81
1921	40	50			

[1] For acts of 1909, 1913, 1921, in containers of less than 5 gallons each; acts of 1922 and 1930, weighing with the immediate container less than 40 pounds.

[2] Calculated for the gallon size only on the basis that a gallon can of olive oil has a total weight for oil and can of 8.5 pounds.

Table 2 shows for the acts of 1922 and 1930 an estimate of the amount of duty collected per gallon of olive oil packaged in various sized tin containers, and the differences over and above the duty collected for a gallon of olive oil imported in bulk.

TABLE 2.—*Olive oil: Estimated equivalent duties per gallon, under tariff acts of 1922 and 1930, on olive oil packed in various sized tin containers and difference between these duties and the duty per gallon on bulk olive oil.*

Number of cans to the gallon	Duty per gallon on packaged olive oil [1]		Difference between duty on 1 gallon of bulk olive oil ($0.495) and 1 gallon of packaged olive oil	
	Act of 1922	Act of 1930	Act of 1922	Act of 1930
1	$0.64	$0.81	$0.145	$0.315
2	.66	.84	.165	.345
4	.69	.87	.195	.375
8	.72	.91	.225	.415
16	.78	.99	.285	.495
32	.84	1.06	.345	.575

[1] Calculated to nearest cent.

DOMESTIC PRODUCTION

Bulk Olive Oil.

Practically all olive oil produced in the United States is manufactured in California from olives grown in that State. The growing of olives on a commercial basis has long been established in California, although only surplus production and culls are crushed for olive oil.

Table 3 shows the bearing acreage of olive trees in California, the production of olives, the quantities of olives used for olive oil, and the production of olive oil for the crop years 1919–20 to 1930–31, inclusive.

TABLE 3.—*Olives and olive oil: Bearing acreage and production of olives, and production of olive oil in California, by crop years*

Crop year July 1–June 30	Bearing acreage [1]	Production of olives [1]	Olives used for olive oil [2]	Olive oil produced [2]	Olive oil produced [3]	Olive oil produced per ton of olives
	Acres	*Short tons*	*Short tons*	*Pounds*	*Gallons*	*Gallons*
1919–20	19,165	8,800	1,660	514,865	67,656	40.8
1920–21	19,528	8,000	3,550	1,038,471	136,461	38.4
1921–22	23,266	8,200	2,547	743,790	97,739	38.4
1922–23	24,474	10,000	894	273,745	35,972	40.2
1923–24	25,583	17,000	7,155	1,811,907	238,096	33.3
1924–25	26,688	6,500	313	80,864	10,626	33.9
1925–26	27,597	14,000	5,056	1,526,970	200,653	39.7
1926–27	28,303	12,000	2,625	700,015	91,986	35.0
1927–28	28,420	21,500	6,212	1,560,584	205,070	33.0
1928–29	28,863	23,900	3,612	971,034	127,600	35.3
1929–30	28,820	21,000	4,161	1,226,332	161,147	38.7
1930–31	28,820	20,000	7,449	2,188,239	287,548	38.6

[1] Source: United States Department of Agriculture and California State Department of Agriculture.
[2] Source: Reports of the Bureau of the Census.
[3] Converted at the rate of 7.61 pounds to the gallon.

NOTE.—The California Olive Association reports that data compiled from the records of its members indicate the following annual production of olive oil in California: 1925–26, 251,371 gallons; 1926–27, 139,704 gallons; 1927–28, 221,768 gallons; 1928–29, 217,263 gallons; and 1929–30, 306,944 gallons.

The statistics show wide fluctuations in the outturn of California olive oil from one year to another. In the crop year 1923–24, for example, 238,096 gallons were produced. The output dropped in the following year to only 10,626 gallons. The output depends not only upon climatic conditions but upon the amount of olive fruit absorbed by the canning industry. There have been practically no new plantings of olive trees in recent years. No important increase in production of olives may therefore be expected in the immediate future. The increase in production for some years following 1921 was due to the greater maturity of trees already planted.

"During the past four years an average of 58 per cent of the commercial production of olives in California was canned, 36 per cent pressed for oil, and 6 per cent shipped fresh and dried." [1]

Olives are grown in California primarily for canning as ripe olives. To this end the high-grade stock is devoted. Small and defective olives not suitable for canning are crushed for olive oil, and when the crop is exceptionally large the surplus is also crushed. The California olive industry is essentially a canning rather than an oil-conversion industry. The oil industry may well be regarded as a by-product of the canning industry.

The production of ripe olives in California in the last 10 years has shown a significant growth. In 1920–21 the pack was reported at 150,000 cases each containing two dozen quarts; in 1928–29 it was 865,000 cases; in 1929–30 it declined to 635,000 cases. Up to the period of the record pack in 1928–29 there was practically no carry-over, but in that year the canners were unable to dispose of all of their output with the result that a considerable portion was carried over, thus forcing a smaller pack in 1929–30. The information of the commission is that the pack in 1930–31 has also been affected by the mounting carry-over.

Beginning with harvest time, usually in November, the grower brings his olives to the canner who pays him a price dependent upon the variety and the size of the olives—the higher prices being paid for the larger sizes. The canner grades the olives and separates the small and imperfect fruit which he normally disposes of for crushing. Experience has shown that the smaller olives if canned appear to depress the prices received for the larger grades and that as a rule, it is more profitable for the industry as a whole to crush the smaller olives for olive oil. An indication of the price differentials existing for various sizes of olives is the price paid per ton to growers for olives used for oil and those used for canning. For the season 1929–30 growers of Mission and Manzanillo olives received as much as $310 per ton for their mammoth olives down to $70 per ton for medium-size olives. Small and oil olives sold for $38 per ton. Growers of olives of the larger sizes and types not used for olive oil receive much higher prices on the average than do growers of olives both for canning and oil production. For the seasons 1928–29 and 1929–30 the average price paid to growers for Sevillanos, not used for olive oil production, was $190 per ton in contrast to $75 per ton for all sizes of Mission and Manzanillos, a part of which represents the price paid for olives used for oil.

[1] Report of H. R. Wellman, of the Giannini Foundation, 1930.

It is, of course, evident that the olive industry in California can not avoid the production of small and cull olives, at present crushed for olive oil. As shown heretofore the percentage used for olive oil is considerable in terms of quantity. The value of the canned olives produced as compared with the value of the olive oil, however, indicates that the business is conducted primarily for the canned ripe olive and that olive oil is a by-product. Reports of the Bureau of the Census show that in 1927 the value at the factory of the domestic production of canned ripe olives was $2,808,238 and in 1929, $4,675,118. Taken at a market value of $2 per gallon, the olive oil would have been worth approximately $193,000 in 1927 and $255,000 in 1929.[2]

The California producers meet no foreign competition in canned ripe olives, as there is no similar production in foreign countries and there are no imports. The California production of olive oil, however, representing so small a part of the domestic consumption, must be disposed of at market prices determined by import conditions. For this reason the domestic industry must be organized to take advantage of the market which it has for canned ripe olives, and to the exploiting of this market it has directed its energies.

Packaged Olive Oil.

The business of packaging domestic bulk olive oil is of small importance. Bulk oil packaged in this country is predominantly of foreign origin. The packaging industry is conducted mainly in and about the North Atlantic coastal cities—New York, Baltimore, Boston, Philadelphia. It is not possible to determine closely the amount of business done by the domestic packers annually. A rough index is afforded by the average import of bulk olive oil amounting during the three years, 1928–1930, to 4,500,000 gallons or more annually. Some of this imported bulk oil is used in packing fish and other food products. Some is blended with other vegetable oils, and a small quantity for technical purposes. It is estimated that about 60 per cent of the bulk oil imported is packaged. The most important phase of the industry is the repacking of bulk oil arriving in this country in containers of 6 gallons or more into smaller containers for general distribution.

EXPORTS

No statistics are available for the exports of domestic olive oil. Exports of such olive oil are unimportant; and the same is true of packaged oil consisting of the product imported in bulk.

IMPORTS

Imports of olive oil consist of (1) olive oil packed in large drums, barrels, or 6-gallon cans, dutiable at 6½ cents per pound; (2) olive oil packed in small tin containers or glass bottles ready for general distribution.

Table 4 shows the United States imports for consumption of bulk olive oil from 1923 to March 31, 1931, inclusive. Table 5 shows the imports of packaged olive oil for the same period. Because of the fact that the weights reported for the imports of packaged olive oil

[2] If the production data for olive oil supplied by the California Olive Association were used the values for olive oil would not be greatly increased.

include the weight of the immediate containers, the conversion to gallons has been based on an average weight of 8.71 pounds to the gallon. This weight has been found by the commission to represent the average weight per gallon of packaged olive oil imported during the period, 1928 to 1930, inclusive.

TABLE 4.—*Bulk olive oil: United States imports for consumption*

Year	Quantity		Value	Duty collected	Ad valorem equivalent	Value per gallon
	Pounds	Gallons [1]				
					Per cent	
1923	32,743,819	4,302,736	$5,089,668	$2,128,348	41.82	$1.183
1924	30,377,066	3,991,722	5,143,973	1,974,505	35.38	1.289
1925	35,868,842	4,713,383	6,343,009	2,331,475	36.76	1.346
1926	29,157,779	3,831,508	5,378,832	1,895,256	35.24	1.404
1927	29,586,216	3,887,808	6,874,893	1,923,104	27.97	1.868
1928	34,127,849	4,484,606	6,233,736	2,218,310	35.59	1.390
1929	34,143,533	4,486,667	5,755,263	2,219,330	37.43	1.283
1930:						
Jan 1–June 17	19,372,855	2,545,710	2,411,799	1,259,236	52.21	.947
June 18–Dec. 31	18,258,764	2,399,312	2,025,603	1,186,820	58.59	.844
1931: January–March	7,020,819	922,578	821,092	456,353	55.58	.890

[1] Converted at 7.61 pounds to the gallon.

TABLE 5.—*Packaged olive oil: United States imports for consumption*

Year	Quantity		Value	Duty collected	Ad valorem equivalent	Value per gallon
	Pounds	Gallons [1]				
					Per cent	
1923	40,824,795	4,687,118	$6,692,869	$3,061,860	45.75	$1.428
1924	46,423,194	5,341,354	7,514,102	3,489,240	46.44	1.407
1925	51,814,291	5,948,828	8,772,095	3,886,072	44.30	1.475
1926	51,601,875	5,924,440	9,926,851	3,870,141	42.87	1.524
1927	42,262,490	4,852,180	9,782,192	3,169,687	32.40	2.016
1928	49,265,513	5,656,201	9,114,471	3,694,913	44.54	1.611
1929	57,905,964	6,648,216	9,998,207	4,342,947	43.44	1.504
1930:						
Jan. 1–June 17	33,956,293	3,898,655	4,514,574	2,546,797	56.41	1.158
June 18–Dec. 31	20,428,334	2,345,389	2,567,158	1,940,692	75.60	1.095
1931: January–March	6,900,380	792,237	882,621	655,536	74.27	1.114

[1] Commission's investigation indicates 8.71 pounds is average weight per gallon of packaged olive oil.

UNITED STATES CONSUMPTION

Domestic consumption supplied by imports is set forth in Table 6.

TABLE 6.—*Olive oil: United States consumption*

Year	Total imports for consumption	Domestic production [1]	Total consumption	Per cent of consumption supplied by imports
	Gallons	*Gallons*	*Gallons*	
1925	10,662,211	200,653	10,862,864	98.15
1926	9,755,948	91,986	9,847,934	99.07
1927	8,739,988	205,070	8,945,058	97.71
1928	10,140,807	127,600	10,268,407	98.76
1929	11,134,883	161,147	11,296,030	98.57
1930	11,189,066	287,548	11,476,614	97.49
Total	61,622,903	1,074,004	62,696,907	98.29

[1] Domestic production taken for crop years, 1925–26 to 1930–31.

PRINCIPAL COMPETING COUNTRY

Italy furnished 70.85 per cent of the total imports of olive oil, both bulk and packaged, and more than 90 per cent of the packaged oil considered separately, in the years 1929 and 1930, and is therefore the principal competing country for the years selected as a basis for cost comparison of packaged oil.

FOREIGN PRODUCTION

The Mediterranean Basin produces practically all of the olive oil which enters into international trade. For the crop years 1925–26 to 1930–31 the total production has averaged annually 216,656,000 gallons. Spain, with an annual average production for the past six years of 107,783,000 gallons, is the world's leading producer of olive oil. Italy, though second to Spain in point of production, with an average of 53,521,000 gallons, has for many years enjoyed a position of primacy in the export trade, first, because of the quality reputation of Italian oil; second, because of a trade mechanism by which Italy freely imports olive oil and, having refined and blended it in free ports, exports it to world markets. The Italians are thus able to maintain uniform quality of product and volume of trade regardless of the fluctuation in domestic supplies.

Table 7 shows the Italian imports and exports of olive oil for the calendar years 1926 to 1930, inclusive. This table, drawn from official sources, shows the importation of olive oil intended for subsequent reexportation as well as that produced from Italian olives entering into the export trade. It will be noted that the quantity of olive oil of actual Italian production exported annually varies considerably, a variation caused by fluctuation in crop conditions and in the intrinsic qualities of domestic oils.

TABLE 7.—*Olive oil: Italian imports and exports*

[Gallons]

	1926	1927	1928	1929	1930
Imports, duty-paid	380,898	153,976	451,729	40,993	499,327
Imports, temporary	8,353,413	8,378,066	13,470,963	13,080,853	16,407,739
Total imports	8,734,311	8,533,042	13,922,692	13,121,846	16,907,066
Exports, Italian oil	2,811,654	2,662,082	494,170	4,038,505	2,001,727
Reexports of temporary imports after improvement	6,729,731	6,390,261	12,286,206	13,709,357	13,581,513
Total exports to all countries	9,541,385	9,052,343	12,780,376	17,747,862	15,583,340
Exports to United States of Italian oil	1,447,776	1,304,142	312,905	2,121,763	(1)
Reexports to United States of temporary imports after improvement	2,072,369	1,709,607	2,980,868	3,797,185	(1)
Total exports to United States	3,520,145	3,013,749	3,293,773	5,918,948	5,508,124

Source: Movimento Commerciale del Regno D'Italia.

[1] Not available.

COMPETITIVE CONDITIONS

Bulk Olive Oil.

Only a minor part of olive oil produced in California is distributed in small containers. The bulk of the output is disposed of in 50-gallon iron drums or in 5-gallon cans. Approximately 80 per cent

of the oil produced in California is marketed within the State. It is only within the State of California that imported and domestic bulk olive oil meet in direct competition. Both domestic and foreign bulk oils are used in the California fish-packing industry as well as for direct edible purposes. The market for imported bulk olive oil is broadly diffused, as shown in Table 8.

TABLE 8.—*Bulk olive oil: Distribution of imports by principal ports of entry*

Port of entry	1929	1930	Port of entry	1929	1930
	Per cent	*Per cent*		*Per cent*	*Per cent*
New York	69.41	72.79	Pittsburgh	1.38	1.75
Boston	3.73	3.73	New Orleans	1.55	1.29
Philadelphia	1.14	1.37	San Francisco	3.24	7.03
Baltimore	9.98	3.86	Los Angeles	3.71	2.23
Chicago	2.26	2.86			

In 1929 California took 7 per cent and, in 1930, 9.3 per cent of the national import. This amounted in actual volume to 314,000 gallons in 1929 and to more than 445,000 in 1930. It will be observed that the State of California imports more bulk olive oil than it produces.

Packaged Olive Oil.

Packaged olive oil as distinguished from bulk olive oil has to do with oil put up in containers of less than 6 gallons. The processes of packaging oil are essentially the same, whether the business is done in the United States or abroad. The packaging industry in this country, outside of the meager business done in the State of California, is wholly dependent upon the supplies of foreign bulk oil for its raw material. The collection of the duty on the weight of the oil, including the immediate container, has favored the importation of olive oil mainly in gallon, half-gallon, and quarter-gallon cans. The domestic production is more important in the quarter, eighth, and sixteenth gallon cans.

Principal markets for and transportation of packaged oil.—Packaged olive oil is widely distributed throughout the United States, the more important markets being concentrated in the great centers of population. The per capita demand naturally increases among elements of the population originating in the Mediterranean countries where the olive tree is indigenous.

The largest single market in the United States is New York City. The following table shows the principal ports of entry for imported packaged oil in 1929 and 1930.

TABLE 9.—*Packaged olive oil: Distribution of imports by principal ports of entry*

Port of entry	1929	1930	Port of entry	1929	1930
	Per cent	*Per cent*		*Per cent*	*Per cent*
New York	45.48	46.18	Pittsburgh	2.63	2.13
Boston	16.40	19.41	New Orleans	3.96	3.39
Philadelphia	5.54	6.21	San Francisco	10.59	10.73
Baltimore	.57	.62	Los Angeles	2.03	1.41
Chicago	4.07	3.23			

Since the domestic packers are located in and around the North Atlantic coastal cities, the computation of differences in transportation expenses is a relatively simple matter. Rail freights to internal markets are practically the same for the domestic and the foreign oil. The commission has credited ocean freight and insurance on the imported packaged oil to the Atlantic seabord but has not included land transportation charges in the United States for either the domestic or the foreign oil.

COST OF PRODUCTION

Domestic Bulk Olive Oil.

The domestic cost of bulk olive oil consists of the cost of production or the price paid for raw olives plus the cost of conversion into olive oil. The commission deemed it impracticable to obtain the cost of growing olives either at home or abroad, and still more impracticable to allocate the domestic cost of production as between olives for crushing and those for canning as ripe olives. In the earlier part of the season; that is, in November and December, practically all olives are delivered to the canning plants. Some canners grade the delivered olives and convert into oil what they consider unsuitable for canning. Other canners dispose of their oil olives at either an agreed price per ton or on the basis of so much per gallon of oil produced. Olives harvested late in the season, January or February, may be sold by the grower direct to the oil plants.

In any case a comparison between the cost of production of domestic bulk olive oil and the corresponding cost of imported bulk olive oil would not furnish a proper basis for fixing the duty on bulk olive oil as provided for by section 336 of the tariff act of 1930. Olives for oil are not the major product of the olive growers but are substantially a by-product. The price received by the grower for olives intended for crushing does not depend on the average cost of production of olives. It depends entirely on what the olive oil manufacturer can afford to pay for the olives he crushes. The amount he is willing to pay, and which under conditions of free competition he will be compelled to pay, is in turn dependent upon the price which can be obtained for the olive oil. As shown heretofore approximately 98 per cent of the domestic consumption of olive oil is supplied by imports. The price at which domestic oil can be sold is therefore substantially fixed by the price at which the imported oil is sold. Furthermore, the price of the imported oil reflects the existing duty. This means that the cost of olive oil produced in the United States is itself substantially determined by the rate of duty on imported olive oil and will necessarily be approximately equal to the delivered cost of the foreign product plus the American duty.

Domestic Packaged Olive Oil.

The commission obtained the cost of packaging olive oil from firms located in and near New York City and Baltimore. The data covered the costs of packing the oil in 1929 and 1930, and the price paid, delivered at the plant, for the various kinds of foreign olive oil

used for the years 1928 to 1930, inclusive. The quantity of olive oil covered by this cost study and the production by types of container are shown in Table 10.

TABLE 10.—*Packaged olive oil: Domestic pack covered by commission's investigation*

[Gallons]

	1928	1929	1930		1928	1929	1930
Total bulk olive oil purchased	820,810	914,231	726,237	Size of container—con.			
				¼-gallon cans	(1)	109,241	99,500
Size of container:				⅛-gallon cans	(1)	151,988	143,228
				1/16-gallon cans	(1)	180,612	182,674
Steel drums	(1)	7,500	8,299	Bottles	(1)	77,094	107,755
5-gallon cans	(1)	49,993	19,595				
1-gallon cans	(1)	159,051	161,224	Total	(1)	772,760	758,055
½-gallon cans	(1)	37,281	35,780				

[1] Not obtained.

Foreign Packaged Olive Oil.

The commission did not deem it necessary or practicable to ascertain the costs of production of imported packaged oil directly from the records of the Italian packers. In lieu thereof the commission made an analysis of the records of importers at New York City for 1928 to 1930, inclusive, and obtained the prices paid for various sized packaged olive oil, f. o. b. Italy. It also obtained the cost of ocean freight and marine insurance. These data furnish the basis of the cost comparison shown in Table 12. The quantities covered in this study are shown in Table 11.

TABLE 11.—*Packaged olive oil: Imports covered by commission's investigation*

[Gallons]

Size of can	1928	1929	1930	Size of can	1928	1929	1930
Gallon	1,215,910	1,715,442	1,681,914	1/16-gallon	21,496	30,188	31,705
½-gallon	391,060	479,852	349,806	1/32-gallon	840	678	522
¼-gallon	333,624	409,594	290,538				
⅛-gallon	32,762	42,156	42,072	Total	1,995,692	2,677,910	2,396,557

COMPARISON OF DOMESTIC AND FOREIGN COSTS OF PACKAGED OLIVE OIL

The commission determined the domestic costs of packing various sized containers in 1929 and 1930. The costs thus determined for each year were weighted by the combined quantity of the domestic production and the foreign imports for each size. The weighted average costs of packing 1 gallon of olive oil in the United States in 1929 and 1930 were then added and divided by two, thus giving a simple average for the two years.

To this cost of packing per average gallon, there was added the simple average price paid by domestic packers for olive oil imported

from Italy delivered at their plants for the years 1928 to 1930, inclusive. The commission has limited its comparison to olive oil packaged in the United States from the product imported from Italy in order to assure a product like or similar to packaged olive oil imported from Italy. Italian olive oil sells at a higher price in the United States than olive oil imported from other countries, because of the preference by the most important group of consumers—residents of Italian origin—for oil designated as imported from Italy.

Table 12 shows a comparison of the costs of packaging, by sizes, in the United States and in Italy. For the individual sizes, the simple average of the three years covered, 1928 to 1930, inclusive, has been taken. The table also shows the weighted average cost per gallon determined by weighting the costs of the individual sizes by the total quantity of domestic and foreign oil covered by the commission's investigation.

Table 13 shows a comparison of the costs per gallon of packaged oil of the average-size can in the United States and in Italy, the amount by which the domestic costs exceed the foreign, and the equivalent per pound calculated on the total weight of the contents and the immediate container.

TABLE 12.—*Packaged olive oil: Comparison of domestic and foreign costs per gallon*

[Simple average, 1928–1930, inclusive]

Size of can	1 gallon	½ gallon	¼ gallon	⅛ gallon	1/16 gallon	Weighted average per gallon [1]
Domestic costs:						
Olive oil	$1.826	$1.826	$1.826	$1.826	$1.826	$1.83
Packaging—						
Direct labor	.031	.044	.047	.060	.065	.04
Cans	.120	.188	.224	.388	.450	.19
Cases and other casing costs	.040	.044	.046	.039	.038	.04
Factory overhead	.073	.066	.064	.069	.075	.07
Administrative expense	.065	.063	.061	.072	.080	.07
Interest on investment	.035	.032	.031	.035	.038	.03
Total cost of packaging	.364	.437	.473	.663	.746	.44
Total cost, including olive oil	2.190	2.263	2.299	2.489	2.572	2.27
Foreign costs:						
Olive oil, packaging, freight, and other charges in Italy	1.398	1.465	1.543	1.669	1.890	1.48
Ocean freight to North Atlantic seaboard	.067	.067	.069	.072	.078	.07
Marine insurance to North Atlantic seaboard	.011	.011	.012	.013	.014	.01
Total	1.476	1.543	1.624	1.754	1.982	1.56
Amount by which domestic exceed foreign costs per gallon	.714	.720	.675	.735	.590	.71
	Gallons					
Quantity of domestic product costed	480, 412	109, 592	313, 112	442, 823	544, 929	1, 890, 868
Quantity of imported product covered by investigation	4, 613, 266	1, 220, 718	1, 033, 756	116, 990	83, 389	7, 068, 119
Quantity of domestic plus imports used as weight	5, 093, 678	1, 330, 310	1, 346, 868	559, 813	628, 318	8, 958, 987

[1] Weighted according to the combined domestic production and imports of each size.

TABLE 13.—*Packaged olive oil: Comparison of weighted average domestic and foreign costs*

Domestic costs per gallon:	
Cost of olive oil	$1.83
Cost of packing (averages for the several sizes combined into a general average by weighting according to the combined domestic production and imports of each size)	.44
Total	2.27
Foreign costs per gallon:	
Cost of olive oil, packing and local freight charges (as determined by average invoice prices of the several sizes combined into a general average by weighting according to the combined domestic production and imports of each size)	1.48
Ocean freight and marine insurance to North Atlantic seaports (averages for the several sizes combined into a weighted average as above)	.08
Total	1.56
Amount by which domestic exceed foreign costs, per gallon	.71
Equivalent per pound on weight of oil and immediate container [1]	.08

[1] The weight of a gallon of olive oil, including the immediate container, as determined by the weighted average of the combined domestic production and the imported by sizes, is 8.875 pounds.

In addition to the invoice prices used by the commission, 16 Italian packers of olive oil submitted their costs of packaging in Italy for the years 1929 and 1930. These were not verified by the commission's accountants. Table 14 shows a comparison of the costs of packing per gallon in the United States as obtained by the commission, and in Italy as reported to the commission, by sizes, with the cost of olive oil excluded.

TABLE 14.—*Packaged olive oil: Comparison of the costs of packing per gallon in the United States and Italy*

[Simple average, 1929 and 1930]

	1 gallon	½ gallon	¼ gallon	⅛ gallon	1/16 gallon
Duty differential per gallon	$0.315	$0.345	$0.375	$0.415	$0.495
Domestic costs of packing, excluding cost of olive oil	.364	.437	.473	.663	.746
Italian costs of packing, excluding cost of olive oil, but including inland freight and other charges to steamer	.246	.287	.345	.456	.634
Amount by which domestic costs of packaging exceed Italian	.118	.150	.128	.207	.112

The differences shown in the above table agree fairly closely with the differences found by the commission in its comparison (Table 12) between the costs of an average gallon of Italian olive oil packed in the United States and the corresponding product imported from Italy, if there be deducted from the differences shown in the final table for each size the cost of ocean freight and insurance, and the duty of 49½ cents per gallon collected on the bulk olive oil used by the domestic packers.

APPENDIX

APPENDIX

DECREASING RATE OF DUTY ON OLIVE OIL

By the President of the United States of America

A PROCLAMATION

Whereas under and by virtue of section 336 of Title III, Part II, of the act of Congress approved June 17, 1930 (46 Stat. 701), entitled "An Act to provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, to protect American labor, and for other purposes," the United States Tariff Commission has investigated the differences in costs of production of, and all other facts and conditions enumerated in said section with respect to, olive oil, being wholly or in part the growth or product of the United States and of and with respect to a like or similar article wholly or in part the growth or product of the principal competing country;

Whereas in the course of said investigation a hearing was held, of which reasonable public notice was given and at which parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard;

Whereas the commission has reported to the President the results of said investigation and its findings with respect to such differences in costs of production;

Whereas the commission has found it shown by said investigation that the principal competing country is Italy, and that the duties expressly fixed by statute do not equalize the difference in the costs of production of the domestic article and the like or similar foreign article when produced in said principal competing country, and has specified in its report the decrease in the rate of duty expressly fixed by statute found by the commission to be shown by said investigation to be necessary to equalize such difference; and

Whereas in the judgment of the President such rate of duty is shown by such investigation of the Tariff Commission to be necessary to equalize such difference in costs of production;

Now, therefore, I, Herbert Hoover, President of the United States of America, do hereby approve and proclaim a decrease in the rate of duty expressly fixed in paragraph 53 of Title I of said act on olive oil weighing with the immediate container less than forty pounds, from 9½ cents per pound on contents and container to 8 cents per pound on contents and container, the rate found to be shown by said investigation to be necessary to equalize such difference in costs of production.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 24th day of June, in the year of our Lord nineteen hundred and thirty-one, and of the Independence of the United States of America the one hundred and fifty-fifth.

[SEAL.] HERBERT HOOVER.

By the President:

HENRY L. STIMSON,
Secretary of State.

○

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UNITED STATES TARIFF COMMISSION

IRON IN PIGS

AND

IRON KENTLEDGE

REPORT TO THE PRESIDENT

ON

THE DIFFERENCES IN COSTS OF PRODUCTION OF IRON IN PIGS AND IRON KENTLEDGE IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

REPORT No. 23

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CONTENTS

	Page
Letter of transmittal	v
Findings of the commission:	
1. Complexity of competitive conditions	1
2. General statistics of production and imports	1
3. Position of steel-making iron	2
4. Situation of foundry iron	2
5. Position of the midwestern district	3
6. Position of the Alabama district	3
7. Position of the Buffalo district	3
8. Position of the eastern district	4
9. Volume of imports	4
Conclusion	4
Summary of information obtained in the investigation:	
Rates of duty	6
Description, uses, and classification	6
Production in integrated and in merchant plants	7
Domestic and world production	8
Exports	8
Imports	9
Period covered by cost investigation	11
Scope of cost investigation	11
Basic iron	11
Foundry iron	12
Less important kinds of pig iron	13
Producers covered by cost investigation	13
Evidence of foreign costs of production	14
Cost comparisons and principal markets—	
1. The midwestern district	15
2. The Alabama district	15
3. The Buffalo district	16
4. The eastern district	17
5. The Pacific coast markets	18
Costs in earlier report by the commission	18
Competition of foreign foundry pig iron in Atlantic seaboard market	18

2 Feb. 1932 Mann

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, June 16, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the report of an investigation made by the United States Tariff Commission of differences in costs of production in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, of iron in pigs and iron kentledge.

This report is accompanied by a summary of information obtained by the commission in the investigation. All relevant facts constituting an advantage or disadvantage in competition were considered by the commission.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

THE PRESIDENT,
The White House.

IRON IN PIGS AND IRON KENTLEDGE

UNITED STATES TARIFF COMMISSION,
Washington, June 15, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of iron in pigs in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation the commission finds that with respect to those classes of pig iron which are subject to foreign competition, notably foundry iron, the varying conditions as regards cost are not such as to warrant either an increase or a decrease in the duty on iron in pigs and iron kentledge fixed by the tariff act of 1930 (par. 301); namely, $1.25 per ton (equivalent to 7.4 per cent ad valorem during the period 1928 to 1930); and that because of the difficulty of establishing definitions that will differentiate classes of pig iron so that they may be accurately distinguished by customs officials it is not desirable at this time to fix a separate rate or rates of duty on basic and Bessemer iron and other classes which are little, if at all, subject to foreign competition. The commission calls attention to the fact that although a reduction in the rate of duty on these classes of iron, which constitute much the larger part of the domestic production, might be justified on the basis of cost differences, such a change would have practically no effect on the industry, either domestic or foreign.

The commission instituted this investigation on July 3, 1930, in compliance with Senate Resolution 309, dated June 30, 1930.

Public notice of the hearing was given on September 22, 1930. At this hearing, held in Washington, D. C., on October 30, 1930, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. *Complexity of competitive conditions.*—The proper rate of duty on iron in pigs and iron kentledge can not be determined by any single comparison of domestic and foreign costs of production and transportation. The industry is so complex as to the kinds and uses of its products, its costs of production, location of plants, location of consuming markets, and competitive conditions that a number of comparisons of costs of production and transportation are necessary to cover the situation. The varying conditions of production, consumption, and competition must be taken into consideration, and different cost comparisons, based upon such consideration, give widely varying differences between domestic and foreign costs.

2. *General statistics of production and imports.*—The average annual production of all kinds of pig iron in the United States during the

3-year period 1927 to 1929 was about 38,000,000 tons. Of the total production, about 22 per cent, or 8,570,000 tons per year was iron in pigs. The average importation of iron in pigs of all kinds during the same period was 140,339 tons, the figure for 1929 being 147,763 tons. It is obvious from the low ratio of imports to domestic production that under the existing duty the great bulk of American pig-iron production is being little affected by foreign competition. An adequate understanding of the situation, however, can not be gained from these general totals.

3. *Position of steel-making iron.*—There are several classes of pig iron, differing in composition and use. Of the total domestic output, about five-sixths consists of those classes of pig iron which are used chiefly for conversion into steel; namely, basic, Bessemer, and low-phosphorus iron. There is practically no importation of steel-making iron and this major branch of the American iron industry would be little, if at all, affected by foreign competition even if there were no duty. This position is the result of two facts: In the first place, the greater part of steel-making iron is used in the molten form for conversion into steel without being cast into pigs. There is thus the saving of the cost of the process of casting into pigs as well as of the cost of handling and of remelting the cold iron. The use of any foreign iron brought into the country for steel-making purposes involves these large additional items of expense. In the second place, the domestic producers of steel-making iron are favored in comparison with the producers of other kinds of iron in transportation costs. Iron in pigs is heavy and of relatively low value, so that transportation expenses from the furnace to the consumer are a dominant factor in competition, constituting, as they do, a large fraction of the delivered cost of shipments to any great distance.

The cost of inland transportation on imported steel-making iron, especially to the great inland markets, serves to eliminate the possibility of competition. The small importation of steel-making iron which takes place is used at or near the seaboard and consists mostly of grades having special characteristics.

The relation between the cost of foundry and steel-making iron determined in the commission's previous investigation, together with consideration of the differences in market distribution, indicates that a reduction in the present rate of duty on steel-making iron might be justified. The commission has not made such a recommendation, however, for the reason that it is difficult if not impracticable to establish a definition of steel-making iron that would enable the customs authorities to distinguish it with certainty from foundry iron and other classes in which the conditions of foreign competition are entirely different. The duty has practically no effect, either on the domestic or the foreign producer of steel-making iron, and a reduction in it would likewise have practically no effect.

4. *Situation of foundry iron.*—The situation as regards foundry iron, which ranks next to steel-making iron in importance, is different. Less than one-eighth of the total domestic output consists of foundry iron, the average quantity produced in the years 1927–1929 being about 4,500,000 tons annually. Imports are largely made up of foundry iron, and are equal to about 3 per cent of domestic production. Foundry iron is normally cast into pigs and must be remelted before it is used. The domestic producer has therefore in this respect none

of the advantages which accrue to the domestic producer of steel-making iron. Furthermore, foundry iron is rarely consumed by the maker, and therefore its distribution involves substantial expense for transportation. Also, the ratio of foundry iron to steel-making iron, in both domestic production and consumption, is higher in the coastal areas than in the interior, and a greater proportion of it encounters competition from imported iron.

India is the principal source of imports of iron in pigs and, it is the principal competing country for the purposes of this investigation. Imports from India are largely foundry iron. The leading foreign countries in the aggregate production of pig iron of all kinds are Germany, the United Kingdom, France, and Belgium, but their output is largely of steel-making iron.

5. *Position of the midwestern district.*—By reason of the great importance of transportation costs, the situation of different groups of producers of foundry iron as regards competition with the imported product varies widely. The production of foundry iron is chiefly in four districts: The midwestern district, the Alabama district, the Buffalo district, and the eastern district.

The midwestern district, which embraces mainly plants in the territory between Pittsburgh and Chicago, is the largest producer of foundry iron, although the ratio of foundry iron to total production is lower than in the other major producing areas, a much greater proportion being steel-making iron. Although the midwestern district has a lower cost of production of foundry iron than the Buffalo or eastern district, it is not able by reason of freight charges to compete with them nor with imported iron, in the territory along the Atlantic seaboard. For the same reason, the midwestern district is practically free from the competition of the Buffalo and eastern districts, and also from the competition of imported iron, in its major markets lying west of the Allegheny Mountains and north of the Ohio River.

6. *Position of the Alabama district.*—The lowest costs of production of foundry iron are found in the Alabama district, the plants of which are centered around Birmingham. For this reason the Alabama producers are able, notwithstanding heavy freight charges, to sell some foundry iron, especially for making cast-iron pipe, along the North Atlantic seaboard, in competition with the producers of the Buffalo and eastern districts and with imported iron. A great part of the Alabama output, however, is consumed in the immediate vicinity of the furnaces, and most of the remainder is shipped to interior and southern points. Because imported iron in pigs would have to pay a very considerable freight rate to reach the Alabama district itself, or the interior markets supplied by that district, the Alabama producers of foundry iron, who operate at a low cost, are subject to foreign competition only in their small coastal markets.

7. *Position of the Buffalo district.*—The situation of the producers of foundry iron in pigs in the Buffalo and eastern districts as regards foreign competition is very different from that of either the midwestern or the Alabama producers. The Buffalo district, unable by reason of relatively higher production costs as well as by freight charges to compete in midwestern territory, is compelled to sell its product either locally or in territory toward the East. Somewhat more than half of its output is sold at or close to the North Atlantic

seaboard in direct competition with imported pig iron. The cost of the foundry iron of the Buffalo district including delivery to these seaboard markets exceeds the corresponding cost of the imported product by much more than the amount of the existing duty. On the other hand, at the present time practically no imported pig iron reaches either Buffalo itself or those parts of the State of New York which are more than 100 miles from the Atlantic seaboard. At Buffalo itself, the imported iron including delivery to that point would cost more than the iron produced locally, and in a considerable part of the State of New York the difference in cost of production, including delivery, would not exceed the existing duty.

8. *Position of the eastern district.*—The producers of foundry pig iron in the eastern district, with furnaces located in eastern Pennsylvania, eastern New York, New Jersey, and New England, are less favorably situated as regards sources of raw material than those of the midwestern and Alabama districts, and their costs of production are higher, largely on that account. Practically their entire product is marketed at or close to the North Atlantic seaboard and is subject to the competition of the imported iron. In most markets in which these producers sell, the inland freight charges paid on imported pig iron are lower than those paid by the eastern producers to the same markets. Since the cost of the imported product laid down at seaboard points is less than the cost of production, at plants, in the eastern district, the total delivered cost of the imported iron is less than that of the domestic product of the eastern district by an amount greater than the present duty.

9. *Volume of imports.*—Notwithstanding the advantage of the foreign producers in cost of production and delivery along the North Atlantic seaboard, imports have not tended to increase during the period since 1926, and, in fact, are much lower than during the period 1923 to 1926. The total quantity of iron in pigs sold by the producers of the Buffalo and eastern district in what may be considered North Atlantic seaboard territory is about 1,200,000 tons annually, and the imports into that territory are about 100,000 tons annually. The smallness and relative constancy of the volume of imports are due to several factors. The less desirable grades made on the Continent of Europe can not be profitably marketed at the price levels prevailing in the United States markets during recent years, and the United States markets can absorb only a limited quantity of the grades now imported at the top prices asked. The tendency toward hand-to-mouth buying by consumers limits importations made to satisfy contracts. Production in India, the chief competing country, is limited and there is also a limit to the tonnage of iron which the regular steamship lines will accept at low rates as ballast in cargoes of bulky material. As yet there has been little importation of iron in pigs in cargo lots.

CONCLUSION

On the basis of the above facts, the commission finds—

(*a*) That for certain kinds of iron in pigs, particularly basic iron, the costs of production in the United States, including delivery to the principal domestic markets, are either less than the corresponding costs of production and delivery of the same kinds of pig iron pro-

duced in the principal competing country, or exceed such costs by less than the amount of the present duty; but that it does not seem feasible to make a definition of these classes of pig iron whereby they can be differentiated from other classes;

(*b*) That for foundry iron in pigs produced in the midwestern and Alabama districts the costs of production, including delivery to the principal domestic markets to which shipments are made from those areas, are either less than the corresponding costs of production and delivery of such iron produced in the principal competing country, or exceed them by less than the amount of the duty;

(*c*) That for foundry iron in pigs produced in the eastern district of the United States, the costs of production, including delivery to the principal markets to which shipments are made from that district, exceed the corresponding costs of production and delivery of such iron produced in the principal competing country by more than the present rate of duty; and that the cost of production at Buffalo of foundry iron in pigs, including delivery to the North Atlantic seaboard areas (a major market for such iron), exceeds, by more than the present rate of duty, the cost of production and delivery of such iron produced in the principal competing country; and

(*d*) That in view of the great variations in differences of costs which may be calculated—variations depending upon the selection of producing areas, markets, and statistical method, the lack of exact physical comparisons between the domestic and imported products, the impossibility of evaluating advantages and disadvantages in competition other than relative costs of production, and the small volume and stability of importations—and further, in view of the difficulty of establishing satisfactory definitions to differentiate kinds of pig iron, on the basis of which different rates of duty may be fixed, the commission does not find sufficient evidence to warrant at this time either an increase or a decrease in the present rate of duty of $1.125 per ton on iron in pigs and iron kentledge.

Appended to this statement of findings is a summary of information obtained in the investigation.

Respectfully submitted.

HENRY P. FLETCHER,
Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
JOHN LEE COULTER,
ALFRED P. DENNIS,
EDGAR B. BROSSARD,
LINCOLN DIXON,
Commissioners.

SUMMARY OF INFORMATION OBTAINED IN THE INVESTIGATION WITH RESPECT TO IRON IN PIGS AND IRON KENTLEDGE

Rates of Duty.

	Per ton
Tariff act of 1930, paragraph 301	$1. 12½
Presidential proclamation, effective Mar. 25, 1927	1. 12½
Tariff act of 1922, paragraph 301	.75

Description, Uses, and Classification.

Pig iron is the result of smelting iron ore, by the use of fuel, usually coke and limestone or other flux. The smelting is done in blast furnaces. The resulting product may be transformed into steel while still in the molten condition, or it may be cast into pigs. Molten pig iron is not an article of international commerce, since it can be transported only a few miles in that condition. For this reason the term used in paragraph 301 of the tariff act of 1930 and in earlier tariff acts is "iron in pigs." Iron kentledge, also mentioned in the tariff act, is iron in pigs used as ship's ballast.

Pig iron may be classified according to composition and use. The several classes ordinarily distinguished in trade statistics, together with the quantity of each class produced in the United States in 1929, are as follows:

Production

	Long tons
Basic	24, 911, 654
Bessemer and low-phosphorus	9, 877, 240
Foundry	4, 446, 011
Malleable	2, 312, 813
Forge	167, 930
All other, including direct castings	41, 567
Total	41, 757, 215

The two classes first named are chiefly used for steel-making, and the great bulk of the product is so employed in molten condition without being cast into pigs. Foundry iron, which ranks next to the steel-making grades in importance, is used by foundries for casting into various shapes.

The distinction between pig iron which is transformed into steel while in the molten condition and pig iron which is cast into pigs conforms rather closely to the distinction maintained in trade statistics between iron made for further use in the same plant and iron in pigs made for sale. Steel works using molten pig iron are ordinarily part of the same integrated plant which produces the pig iron.

Of the total production of pig iron in 1929, amounting to 41,757,000 tons, the quantity produced for sale was 9,014,000 tons, or 22 per cent of the total. Of this iron made for sale, nearly half, 4,113,000 tons, consisted of foundry iron, and more than one-fifth, 2,061,000 tons, of malleable iron. The amount of basic, and of Bessemer and low-phosphorus iron made for sale was only about 2,737,000 tons, as against a production of such iron (chiefly used in the molten condition) not made for sale of approximately 32,000,000 tons. The following tables show for recent years the total production of pig iron, and the quantity produced for sale, the latter being distinguished by grades.

Production in the United States of pig iron of all grades and of iron in pigs (for sale)

Year	Pig-iron production		Ratio of iron in pigs for sale to total	Year	Pig-iron production		Ratio of iron in pigs for sale to total
	Total	For sale			Total	For sale	
	Long tons	*Long tons*	*Per cent*		*Long tons*	*Long tons*	*Per cent*
1923	39,721,415	10,105,890	25.44	1927	35,858,232	8,977,889	25.04
1924	30,874,765	8,057,899	26.10	1928	37,401,648	7,723,676	20.65
1925	36,116,311	8,586,704	23.78	1929	41,757,215	9,013,852	21.59
1926	38,698,417	9,288,449	24.00	1930	31,020,907	6,567,419	21.17

United States production of iron in pigs for sale, by grades

Year	Basic		Bessemer and low-phosphorus		Foundry	
	Long tons	Per cent of total	Long tons	Per cent of total	Long tons	Per cent of total
1923	2,008,442	19.87	868,277	8.59	5,562,056	55.04
1924	1,606,822	19.94	619,139	7.68	4,839,008	60.05
1925	1,951,329	22.73	558,251	6.50	4,682,258	54.53
1926	2,105,173	22.66	532,932	5.74	5,030,883	54.16
1927	1,821,977	20.29	602,944	6.72	4,913,245	54.73
1928	1,747,702	22.63	409,866	5.31	3,808,988	49.31
1929	2,169,147	24.06	567,711	6.30	4,112,649	45.63
1930	1,597,474	24.32	323,963	4.93	3,133,034	47.71

Year	Malleable		Forge		All other		Total
	Long tons	Per cent of total	Long tons	Per cent of total	Long tons	Per cent of total	Long tons
1923	1,469,673	14.54	186,592	1.85	10,850	0.11	10,105,890
1924	865,859	10.75	123,200	1.53	3,871	.05	8,057,899
1925	1,323,252	15.41	63,661	.74	7,953	.09	8,586,704
1926	1,545,620	16.64	45,100	.49	28,741	.31	9,288,449
1927	1,563,334	17.41	68,515	.76	7,874	.09	8,977,889
1928	1,700,178	22.01	51,029	.66	5,913	.08	7,723,676
1929	2,060,662	22.86	101,147	1.12	2,536	.03	9,013,852
1930	1,432,241	21.81	39,147	.60	41,560	.63	6,567,419

Production in Integrated and in "Merchant" Plants.

Distinction is made in the industry between integrated plants and merchant blast furnaces. An integrated plant is one which combines the smelting of pig iron with the production of steel, often including further elaboration of steel products; a merchant blast furnace produces only iron in pigs for sale as such. In recent years there has been an increase not only in the proportion of the pig iron produced for use by the plant where made, but in the production of iron in pigs for sale by integrated concerns. Formerly the iron used by foundries was made principally in blast furnaces which sold their entire output in pig form. An increasing share of this business has in recent years been obtained by the integrated plants. Although the latter use most of their product in molten form for further processes, they tend, when the market for steel products is not fully active, to avoid expensive shutdowns of their blast furnaces by turning to the production of merchant iron. Owing in part to the economies of large-scale production and in part to the fact that many of

the integrated plants are more advantageously located than the merchant furnaces, the cost of production of iron in pigs is usually lower for integrated plants than for the merchant furnaces. It should be noted, however, that the integrated plants can enter the market for merchant iron only to the extent of their surplus furnace capacity. Any production of merchant iron in excess of such surplus involves curtailment of their steel output.

Domestic and World Production.

Because of the fact that the different kinds of iron produced in the United States and in the several areas of production are subject to widely differing conditions of competition with imported iron, the statistical position of the United States in world production of all pig iron is unsatisfactory as a basis for consideration of the tariff on iron in pigs. At the present time the American industry produces about one-half of the pig iron made in the world. The average output of United States blast furnaces in the years 1923 to 1929, inclusive, including the iron used in molten form by steel plants, was 37,204,000 tons, while the world production averaged 79,750,000 tons.

The other leading countries in iron production are Germany, France, Great Britain, and Belgium. There is a smaller output in Russia, Luxemburg, Saar Territory, Czechoslovakia, Japan, India, Canada, and Sweden. The four largest foreign producing countries above mentioned are, like the United States, more concerned with steel-making iron than with foundry and malleable iron. The bulk of their product is converted while molten into steel although there is some international movement of steel-making iron in the pig form among them and from them to other countries.

British India is the chief source of imports of iron in pigs into the United States. Its position in the pig-iron industry is very different from that of the leading iron-producing countries of Europe. Its total output in 1929 was 1,340,000 tons, but of this amount 1,032,000 tons, or 77 per cent, was foundry iron. Most European countries consume the greater part of their output of pig iron in their own industries, whereas India exports a large proportion of its output, the exports of iron in pigs in 1929 amounting to 548,000 tons, chiefly to Japan and the United States.

Exports.

During the period 1923 to 1929 exports of iron in pigs showed fluctuations but no marked trend. The annual average for the period was 44,816 tons. Exports to Canada averaged 25,991 tons, or 58 per cent of the total. Exports to Japan were small until 1928, when they amounted to 39,762 tons, with a decrease to 16,930 tons in 1929, exported principally from the Birmingham district in Alabama. Exports to the United Kingdom averaged 7,240 tons per year during the period 1923 to 1927, but were only 217 tons in 1928 and 209 tons in 1929.

Data respecting the grades of iron exported are not available.

The statistics of exports to principal countries are shown in the following table.

Iron in pigs: United States exports by countries

Year	Country of destination								
	Canada		United Kingdom		Japan		All other countries		Total exports
	Long tons	Per cent of total	Long tons	Per cent of total	Long tons	Per cent of total	Long tons	Per cent of total	Long tons
1923	20,727	64.13	7,442	23.03	80	0.25	4,069	12.59	32,318
1924	25,010	60.29	9,877	23.81	62	.15	6,534	15.75	41,483
1925	20,081	61.46	8,209	25.12	105	.32	4,279	13.10	32,674
1926	18,217	72.27	3,761	14.92	51	.20	3,179	12.61	25,208
1927	35,128	68.89	6,910	13.55	4,398	8.62	4,556	8.94	50,992
1928	39,342	46.46	217	0.26	39,762	46.95	5,361	6.33	84,682
1929	23,431	50.55	209	.45	16,930	36.52	5,787	12.48	46,357

Imports.

Imports of iron in pigs under the tariff act of 1922 reached a maximum in 1926 with a total tonnage of 445,773. During the 3-year period 1927 to 1929, the average annual importation amounted to 140,339 tons. In 1929 importations were 147,763 tons, valued at $2,398,587, and in 1930 they were 137,031 tons, valued at $1,806,731.

During the period 1923 to 1926 substantial tonnages were received from Germany and other continental countries. This iron was in demand in the United States while prices were relatively high. Since 1926, continental iron, with the exception of that from the Netherlands, has been of small importance in the United States markets. During 1930 importations from the Netherlands were greatly curtailed.

Of all imports, over 70 per cent consist of foundry grades, the remainder is largely basic iron with a smaller proportion of low-phosphorus and other special and high-priced grades. The importation of malleable iron is reported by the trade to be negligible.

Since 1926, British India has been the source of more imported iron in pigs than any other country and is the principal competing country for purposes of this investigation.

The quality of Indian foundry iron is fully as good as that of irons produced in the eastern and Buffalo districts, and somewhat superior to that of Alabama iron which is in limited demand in the North Atlantic market and sells in that market at lower prices than other irons.

As previously stated, imports of iron in pigs from British India consist chiefly of high-grade foundry irons. Imports from the United Kingdom include a variety of foundry and steel-making irons, particularly low-phosphorus and other grades suitable for use in making fine steel. The Netherlands sends standard grades of foundry and some basic iron. Sweden normally supplies a small tonnage of high-grade charcoal iron which sells at high prices and is used for special purposes.

Available statistics of the importation of iron in pigs by countries to the United States are as follows:

Iron in pigs: United States general imports by countries

Year	Country of origin					Total imports	
	British India	United Kingdom	Netherlands	Germany	Others	Quantity	Value
	Long tons	*Long tons*	*Long tons*	*Long tons*	*Long tons*	*Long tons*	
1923	17,988	198,138	----------	20,740	130,912	367,778	$9,005,077
1924	71,370	57,189	23,857	11,228	45,465	209,109	3,741,213
1925	184,325	96,869	54,904	75,052	30,275	441,425	7,951,283
1926	83,311	92,083	69,054	157,094	44,231	445,773	7,708,982
1927	66,627	21,129	29,380	9,211	6,221	132,568	2,254,355
1928	56,420	50,944	26,989	695	5,646	140,694	2,232,094
1929	69,243	39,140	24,189	103	15,088	147,763	2,398,587
1930 [1]	108,261	14,239	6,243	50	8,238	137,031	1,806,731

[1] Imports for consumption.

Of the iron in pigs from British India, 36 per cent of the total imports in 1929 entered through the port of Philadelphia, 8 per cent through New York, 17 per cent through Massachusetts, 11 per cent through Maryland, or a total in the North Atlantic district of 72 per cent of all imports from the chief competing country.

Statistics of total imports by regions and imports from British India by customs districts are shown in the following tables.

Iron in pigs: United States general imports by regions

	1925		1926		1927	
	Long tons	Per cent of total	Long tons	Per cent of total	Long tons	Per cent of total
Atlantic coast	401,806	91.0	394,377	88.5	108,281	81.7
New England	124,352	28.2	67,496	15.2	13,850	10.4
New York	49,412	11.2	46,027	10.3	15,276	11.5
Philadelphia	207,181	46.9	239,813	53.8	63,310	47.8
Maryland and Virginia	20,861	4.7	41,041	9.2	15,845	12.0
Pacific coast	25,078	5.7	29,057	6.5	17,922	13.5
Gulf coast	6,662	1.5	17,941	4.0	4,506	3.4
Michigan	6,123	1.4	3,458	.8	472	.4
Other districts	1,756	.4	940	.2	1,387	1.0
Total imports	441,425	100.0	445,773	100.0	132,568	100.0

	1928		1929		1930 [1]	
	Long tons	Per cent of total	Long tons	Per cent of total	Long tons	Per cent of total
Atlantic coast	111,939	79.6	109,224	73.9	119,876	87.5
New England	19,122	13.6	23,456	15.9	12,130	8.9
New York	6,949	4.9	10,556	7.1	6,763	4.9
Philadelphia	77,789	55.3	62,057	42.0	93,687	68.4
Maryland and Virginia	8,079	5.8	13,155	8.9	7,296	5.3
Pacific coast	21,430	15.2	25,064	17.0	13,414	9.8
Gulf coast	3,160	2.2	3,791	2.5	2,538	1.9
Michigan	975	.7	7,351	5.0	480	.3
Other districts	3,190	2.3	2,333	1.6	723	.5
Total imports	140,694	100.0	147,763	100.0	137,031	100.0

[1] Imports for consumption.

Iron in pigs: United States imports for consumption of Indian iron of all grades by customs districts

Customs district	1929		Jan. 1 to June 30, 1930		Customs district	1929		Jan. 1 to June 30, 1930	
	Long tons	Per cent of total	Long tons	Per cent of total		Long tons	Per cent of total	Long tons	Per cent of total
Washington	1,460	2.1	855	1.9	New York	5,710	8.3	3,500	7.8
Oregon	644	.9	297	.7	Massachusetts	11,640	16.8	5,616	12.6
San Francisco	9,100	13.2	3,043	6.8	Sabine	1,785	2.6		
Los Angeles	5,199	7.5	1,852	4.2	Hawaii	299	.4	301	.7
Galveston	917	1.3	1,328	3.0					
Maryland	7,350	10.6	1,656	3.7	Total	69,243	100.0	44,583	100.0
Philadelphia	25,139	36.3	26,135	58.6					

Period Covered by Cost Investigation.

The 18-month period from January 1, 1929, to June 30, 1930, was selected for cost determinations as the latest period representative of operations in recent years. That period included about 10 months of high productivity in the United States and 8 months of relatively low activity. The selected period is equally representative of recent import trade.

Scope of Cost Investigation.

The previous investigation of iron in pigs by the Tariff Commission entered into detail regarding the cost, in 1924, of the principal classes of pig iron in each of the principal producing districts of the United States. Certain relationships were established between the costs of different kinds of iron and between the costs in different districts. In the course of the present investigation it was found that these relationships have not materially changed since 1924. Consideration of these relationships and of the readily ascertainable facts with regard to costs of transportation to the principal markets made it possible to reach conclusions as to the relations between the cost of domestic and foreign foundry iron and other kinds of pig iron without a complete investigation of actual costs during the period chosen as representative in the present investigation. For foundry iron in pigs, however, the most important class imported, complete cost data for the selected period were secured.

Basic Iron.

As shown above, about five-sixths of the domestic output of pig iron consists of basic, Bessemer, and low-phosphorus iron, which is used chiefly for making steel. Of this group, basic is much the most important.

The cost investigation of 1924 showed that in any given producing district, and under similar conditions of integration of plants, the unit cost of production of basic iron differs little from that of foundry iron.

The greater part of the basic, Bessemer, and low-phosphorus iron produced in the United States is used in molten condition for conversion into steel, and is not cast into pigs. If imported iron is used for steel-making purposes, two considerable items of cost must be incurred from which the bulk of the domestic product is exempt;

namely, the cost of the process of casting the molten iron into pigs and the cost of remelting the cold iron.

The bulk of the production of steel-making iron in the United States is in two districts. The so-called western district embraces plants lying between the Allegheny Mountains and the Great Lakes. The Alabama district embraces plants in and near Birmingham. The principal markets for the steel-making iron are in these same districts; as a rule the market for any given blast furnace making such iron is a steel plant operated in conjunction with the furnace. In consequence the cost of transportation of the domestic product to its principal market is usually negligible. On the other hand, steel-making iron imported from foreign countries would have to incur a heavy cost of rail transportation from the American seaports to these interior markets.

The situation with respect to basic iron is indicated by other cost statistics in the present report. The commission found that during the period January 1, 1929, to June 30, 1930, the average cost of production of foundry iron (which is roughly the same as basic) in the midwestern district, including interest on investment, was about $16.70 per ton. During this same period the average invoice price of Indian foundry iron delivered at New York was about $18. The freight rate on iron in pigs from New York to Pittsburgh and vicinity, the nearest part of the great midwestern market for steel-making iron, is more than $5 per ton. Though these figures are approximate only, they show conclusively—especially in view of the further cost of remelting at the steelworks which the foreign product would have to incur—that imported steel-making iron can not compete in the principal consuming areas of such iron in the United States.

These factors show that the total cost of production of steel-making iron in the principal producing regions of the United States, together with the cost of delivery to the principal markets for such iron in the United States, is less than the cost of production in any foreign country, together with the cost of delivery to these same markets in the United States.

Foundry Iron.

For foundry iron, which ranks next to the steel-making iron in importance in domestic production, the relation between domestic and foreign costs is entirely different. The competitive positions of the several districts which produce foundry iron vary, however, and no general average of costs furnishes an adequate basis for fixing a rate of duty on foundry iron.

As already stated, the total output of foundry iron in the United States averages about 4,500,000 tons annually. Imports of all iron in pigs, chiefly from India, have during the last few years averaged about 120,000 tons annually.

Foundry iron, unlike steel-making iron, is not normally transferred in molten condition to plants which further elaborate or transform it. It is normally cast into pigs and must be remelted before it is further treated. The domestic industry, therefore, has not in this respect the advantage which it enjoys over the foreign producer of steel-making iron. Moreover, most foundry iron is consumed in foundries located at some distance from the blast furnaces, and the domestic producer must therefore incur a large expense for transportation.

The principal markets for foundry iron are different geographically from those for basic and Bessemer iron.

Cost data for foundry iron during the period January 1, 1929, to June 30, 1930, were obtained from each of the four principal producing districts and are shown later herein.

Less Important Kinds of Pig Iron.

Pig iron of classes other than basic and foundry iron is of relatively minor importance both in domestic production and in imports. For this reason and also because of the special characteristics of and the imperfect comparability between the domestic and imported products no cost comparisons for the special classes of pig iron are presented. The result of such comparisons would have little bearing upon the determination of the proper rate of duty on iron in pigs as a whole. Moreover, the technical difficulty of distinguishing different kinds of iron accurately, because of some interchangeability in use and the variable and widely different chemical analyses, particularly among the special irons, precludes the establishment of a number of different rates on the various minor types.

Producers Covered by Cost Investigation.

The producing territory covered by the commission's cost investigation is as follows:

Iron in pigs: Location of producing districts

District	State	Number of plants costed
Midwestern	Western Pennsylvania, Ohio, Illinois, Indiana, Michigan	7
Alabama	Alabama	7
Buffalo	Western New York	5
Eastern	Eastern Pennsylvania, New York, Massachusetts	8
Total		27

During the 18-month period from January 1, 1929, to June 30, 1930, domestic production of foundry iron amounted to 6,414,029 long tons. Costs were obtained covering the production of 4,196,671 long tons, or 65.43 per cent of the total output.

The items included in the cost of production of domestic foundry iron are: Raw materials, charged at cost if produced by the consumer, and at market price if purchased in the open market or from an affiliated company under separate management; labor and plant expense, including relining; credits for by-products sold; overhead, including general and administrative expense except Federal income taxes; and interest at 6 per cent on the depreciated value of fixed assets in blast furnace equipment, excluding interest actually paid. Selling expense, amounting to about 25 cents per ton, was not included. The following table shows the domestic cost of production of foundry iron by districts for the 18-month period selected.

Iron in pigs: Cost of production in the United States of foundry iron by producing districts for the 18-month period, January 1, 1929, to June 30, 1930 (per long ton)

Item	Eastern	Buffalo	Alabama	Midwestern
Materials:				
Metallic mixture	$8.23	$8.20	$5.68	$8.70
Fuel	5.90	6.21	3.06	4.04
Flux	.47	.54	.12	.48
Total materials	14.60	14.95	8.86	13.22
Labor and expense:				
Direct labor	.57	.42	.59	.55
Relining expense	.40	.31	.32	.31
Other plant expense	1.83	2.09	1.70	1.77
Total labor and expense	2.80	2.82	2.61	2.63
Total plant cost	17.40	17.77	11.47	15.85
By-product credits	.89	.60	.52	.95
Net plant cost	16.51	17.17	10.95	14.90
Overhead	1.46	1.47	1.96	1.16
Total cost excluding interest	17.97	18.64	12.91	16.06
Interest	.95	.84	.40	.62
Total cost including interest	18.92	19.48	13.31	16.68
Selling expense	.25	.27	.11	.36
Production costed (long tons)	789,282	666,180	1,788,232	952,977
Total production (long tons)	789,282	910,546	1,993,651	2,438,952
Per cent of total production costed	100.00	73.16	89.69	39.07

It will be noted from the foregoing table that the total cost, including imputed interest, for the eastern and Buffalo districts is about $2 per long ton higher than for the western district, and about $6 per long ton higher than for the Alabama district.

The differences in average cost in the various districts are due largely to the locations of the plants with respect to raw materials and in lesser degree to differences in organization. The eastern plants do not use local ores to any extent but obtain most of their supply from abroad. Fuel must also be transported considerable distances. Some of the large plants in Buffalo buy ore from separate concerns and charge it at open market prices, and all plants in that district have a high transportation cost for fuel.

The Alabama district, by reason of the fact that it uses local raw materials, and has cheap labor, is the lowest cost producing district in the United States. The midwestern district depends largely upon iron ore from the Lake Superior district, which is at a considerable distance, but has the advantage of low-priced water transportation. The large tonnages produced in that district are probably further instrumental in bringing down the average cost for the district.

Evidence of Foreign Costs of Production.

The commission found it impracticable to send investigators to British India for the purpose of obtaining the cost of production directly from the producers' records. Invoice prices for the period covered by the investigation have been accepted as evidence of foreign costs. In addition to the price at the foreign plant, all expenses incurred in transporting foundry iron from the foreign plant to points of consumption in the North Atlantic territory were obtained from invoices or from the importers' records covering substantially all shipments during the cost period.

Inasmuch as practically all the foundry iron imported into the United States from British India is handled by one importer, it is possible in this report to submit only the weighted average cost of Indian iron delivered in the North Atlantic market, selected as representative of the entire market for iron in pigs from India, during the period covered by the cost investigation. The cost of foundry iron, including transportation and other delivery charges to that market, amounted to $19.07 per long ton.

British India has large reserves of raw materials, low labor costs, modern equipment, and relatively low transportation costs from the plants to United States ports.

Cost Comparisons and Principal Markets.

1. *The midwestern district.*—Because of the geographic situation of their principal markets, the producers of foundry iron in the midwestern district are not affected by foreign competition. The midwestern district is the largest producer of foundry iron, although its leadership in this respect is much less marked than in steel-making iron. The cost of production of foundry iron in the midwestern district is lower than in the Buffalo district or the eastern district. Nevertheless the high cost of long-distance rail transportation prevents it from competing with these two districts in the territory along the Atlantic seaboard; for the same reason the Buffalo and eastern districts are unable to sell their product in the midwestern territory. The great bulk of the foundry iron produced by the midwestern district is consumed within that district.

The average cost of production of foundry iron in the midwestern district during the period January 1, 1929, to June 30, 1930, was $16.68 a ton. This was lower than the invoice price of Indian foundry iron plus transportation to the American seaports. It is evident, in view of the additional cost of inland transportation, which imported iron would incur, that it can not compete with the foundry iron of the midwestern district in the principal markets which that district supplies.

2. *The Alabama district.*—The Alabama district is the second largest district in the domestic production of foundry iron, and, for reasons already stated, it has the lowest cost of production. The situation of this district with respect to the competition of foreign iron varies in different parts of the territory to which it ships.

A large part of the production of the Alabama furnaces is consumed in near-by foundries. Inasmuch as the average cost of production of foundry iron in this district, $13.31, is much less than the invoice price of Indian pig iron delivered to any point on the Atlantic seaboard, and inasmuch as the rail freight on imported iron in pigs from the nearest port to Birmingham and vicinity is considerable, it is evident that imported iron can not compete in the local markets of the Alabama producers.

In addition to local distribution, the Alabama producers sell large quantities of foundry iron throughout the South and in many parts of the midwestern producing area. The costs of production, including delivery to market—except to some seaboard territory—are lower for the Alabama producers than for the foreign producers.

By reason of their exceptionally low cost of production the Alabama producers sell considerable quantities of iron in pigs along the North Atlantic coast, a territory chiefly supplied by the Buffalo and eastern producers, and by imported iron in pigs. During the period covered

by the cost investigation, Alabama producers shipped about 141,000 tons of foundry iron into this North Atlantic seaboard territory. In the following table the costs of the Alabama producers for iron in pigs delivered into this territory are computed on two different bases: (1) On the basis of the actual average freight rate paid, and (2) the basis of an estimated equalized freight charge. It is a common practice of producers both of this commodity and of other commodities to give reduced prices (f. o. b. producer's plant) to buyers in more distant markets, while maintaining somewhat higher f. o. b. prices to near-by consumers, and in this way partially or wholly to equalize freights as between different markets. Price differentials, f. o. b., on sales of foundry pig iron to different markets during 1929 and 1930 were frequently as high as $2 per ton and in some instances reached $2.50 per ton. In the equalized freight charge shown in the table, account was taken of the actual freight charges paid by the Alabama producers to all their markets with the exception of those in the immediate vicinity of the blast furnaces. The total quantity of iron in pigs covered by this average freight charge was about 589,000 tons.

Foundry iron in pigs: Comparison of domestic costs of production in the Alabama district with foreign costs, including transportation and other charges to the North Atlantic seaboard market, for the 18-month period, January 1, 1929, to June 30, 1930

[Long tons or dollars per long ton]

Domestic iron:	
Total production of district	1,993,651
Production costed	1,788,232
Production marketed in North Atlantic market	141,221
A. Cost f. o. b. plant	$13.31
Actual average freight to North Atlantic market	5.99
Total	19.30
B. Cost f. o. b. plant	13.31
Equalized freight charge (based on charges paid on 588,627 tons)	2.58
Total	15.89
Foreign iron:	
Cost (invoice price) plus expenses of delivery to North Atlantic market	19.07
Excess of domestic over foreign costs:	
Basis A	.23
Basis B	3.18

It will be seen from this cost comparison that on the basis of actual freight rates from the Alabama district to the North Atlantic area the delivered cost for the Alabama producers is slightly higher than that for the imported Indian iron, the excess being less than the amount of the duty, but that the cost difference is in favor of the domestic producers when freight rates are calculated on the equalized basis.

3. *The Buffalo district.*—The competition of the Buffalo district with domestic and foreign foundry iron is decidedly different from that of the midwestern and Alabama districts. The Buffalo producers are unable, by reason of relatively higher production costs as well as freight charges, to sell in midwestern territory in competition with the furnaces of that region. They sell their product either locally or in territory toward the East, where they have an advantage over

midwestern producers in the matter of freight charges. About half of the Buffalo output is marketed in the area along or near the North Atlantic coast, which may therefore be considered the principal market of this district.

The cost of that fraction of the output of the Buffalo district which is consumed locally, plus the relatively small freight charge, is less than the invoice price of Indian iron landed at New York plus freight charges to Buffalo. At intermediate points in the State of New York the situation varies according to the freight rates. On the other hand, the position of the Buffalo producers in sales at or near the Atlantic seaboard is the reverse of their position in local sales in the Buffalo district. In the following table the cost comparison is presented in two ways, freight being calculated, as for the Alabama district, on the basis both of actual charges paid and of an equalized rate. Calculated on either basis, however, the total delivered cost for the Buffalo district in the seaboard market is higher than that of the imported iron by more than the amount of the duty.

Foundry iron in pigs: Comparison of domestic costs of production in the Buffalo district with foreign costs, including transportation and other charges to the North Atlantic seaboard market for the 18-month period, January 1, 1929, to June 30, 1930

[Long tons or dollars per long ton]

Domestic iron:	
Total production of district	910, 546
Production costed	666, 180
Production marketed in North Atlantic area	411, 403
A. Cost f. o. b. plant	$19. 48
Actual average freight to North Atlantic market	4. 36
Total	23. 84
B. Cost f. o. b. plant	19. 48
Equalized freight charge (based on charges paid on 847,144 tons)	2. 99
Total	22. 47
Foreign iron:	
Cost (invoice price) plus expenses of delivery to North Atlantic market	19. 07
Excess of domestic over foreign costs:	
Basis A	4. 77
Basis B	3. 40

4. *The eastern district.*—Unlike the producers of all other districts, those of the eastern district are subject to the competition of imported iron in practically their entire market. The blast furnaces of this district are situated in eastern Pennsylvania, eastern New York, New Jersey, and New England, and practically their entire output is sold at or near the North Atlantic seaboard. To most points in this area the imported iron in pigs incurs a lower inland rail freight charge than the domestic iron, and since the cost of the imported product laid down at the ports themselves is less than the average cost of production of the eastern furnaces, exclusive of freight charges, the total delivered cost of the imported iron is considerably less, the difference being greater than the amount of the present duty. The comparison is shown in the accompanying table, in which there was no occasion for presenting adjusted freight charges as was done in the comparison for the other two districts.

Foundry iron in pigs: Comparison of domestic costs of production in the Eastern district with foreign costs, including transportation and other charges to the North Atlantic seaboard market, for the 18-month period January 1, 1929, to June 30, 1930

[Long tons or dollars per long ton]

Domestic iron:	
Total production of district	789, 282
Production costed	789, 282
Production marketed in North Atlantic market	752, 419
Cost f. o. b. plant	$18. 92
Actual average freight to North Atlantic market	2. 01
Total	20. 93
Foreign iron:	
Cost (invoice price) plus expenses of delivery to North Atlantic market	19. 07
Excess of domestic over foreign costs	1. 86

5. *The Pacific coast markets.*—Although the principal markets for foundry iron are in the eastern half of the United States, there is also a substantial market on the Pacific coast. There is no local production, and the region is supplied from blast furnaces in Utah, Colorado, and Alabama, and from those of India. The market is mostly in the coastwise cities, and domestic producers are at a disadvantage because of the high cost of rail freight. Thus the cost at Los Angeles of foundry iron from the Alabama district (shipped by rail to the Atlantic coast and thence through the Panama Canal) exceeds the cost of Indian iron delivered at Los Angeles by about $4.10 per long ton.

Costs in Earlier Report by the Commission.

It may be noted that in the report to the President of an earlier investigation of pig iron made by the commission, the amount by which the domestic cost of foundry iron in pigs, including delivery to the North Atlantic market, exceeded the foreign cost, delivered, was shown to be between $7 and $8 per long ton in the comparisons for both the eastern district and the Buffalo district. The marked decrease in the cost differences shown by the present investigation is accounted for as follows:

1. A number of domestic plants with high costs which were in operation in 1924 and were included in the cost averages for that period are no longer operating, and an increased share of the production has been taken by low-cost integrated plants.

2. There has been improvement in blast furnace practice, resulting in somewhat lower costs of production in the United States.

3. Materials for the domestic plants are lower in price than formerly.

4. In the present investigation, the inland freight charges on imported iron in pigs from ports of importation to the actual points of consumption in the North Atlantic areas have been included, whereas in the earlier investigation the foreign cost included only freight charges to the port of New York.

Competition of Foreign Foundry Pig Iron in the Atlantic Seaboard Market.

In considering the position of the producers of foundry iron in the eastern and Buffalo districts with reference to the competition of foreign iron, attention is called to pertinent facts other than comparisons of costs; namely, the fact that the quantity of foundry iron

imported in recent years has been relatively small, and the fact that it has shown no tendency to increase. The amount of Indian foundry iron sold along the North Atlantic seaboard during the period January 1, 1929, to June 30, 1930, was less than 100,000 tons, while the deliveries of the eastern and Buffalo furnaces to the same territory amounted to about 1,200,000 tons.

The relatively small quantity of imports may be attributed to several causes: (*a*) The total production of pig iron in India, at least as yet, is comparatively small, and although a great part of the output is exported much of it is required by countries nearer to India than is the United States; (*b*) the Indian producers may find it more profitable to sell a limited quantity at prices fixed by domestic conditions in the United States than to depress the price by much larger shipments; (*c*) Indian foundry iron sells at relatively high prices in the United States with resulting limitation of demand; (*d*) up to the present time most of the shipments of iron in pigs from India into the United States have come in vessels carrying other cargo. Iron has served virtually as ballast in conjunction with cargoes of light articles, such as jute. There has been apparently no movement from India of complete cargoes of iron in pigs as there has been from Europe.

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UNITED STATES TARIFF COMMISSION

HIDES AND SKINS OF CATTLE
OF
THE BOVINE SPECIES

REPORT TO THE PRESIDENT
ON THE

DIFFERENCES IN COSTS OF PRODUCTION OF HIDES AND SKINS OF CATTLE OF THE BOVINE SPECIES, RAW OR UNCURED, OR DRIED, SALTED, OR PICKLED, IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

REPORT No. 24

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THOMAS WALKER PAGE, Vice Chairman

JOHN LEE COULTER

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UNITED STATES TARIFF COMMISSION

WASHINGTON, D. C.

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2 Feb. 1932 Mauer

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, June 16, 1931.

MY DEAR MR. PRESIDENT:

I have the honor to transmit herewith the report of an investigation made by the United States Tariff Commission, for the purposes of section 336 of Title III of the tariff act of 1930, with respect to hides and skins of cattle of the bovine species, raw or uncured, or dried, salted, or pickled.

Respectfully,

HENRY P. FLETCHER,
Chairman.

The PRESIDENT,
The White House.

HIDES AND SKINS OF CATTLE OF THE BOVINE SPECIES

UNITED STATES TARIFF COMMISSION,
Washington, June 15, 1931.

To the President:

The United States Tariff Commission herein reports the results of an investigation with respect to hides and skins of cattle of the bovine species, raw or uncured, or dried, salted, or pickled, in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930.

The commission makes no findings at this time with respect to the rates of duty on the products covered in this investigation.

The commission instituted this investigation on July 11, 1930, in compliance with Senate Resolution No. 313, dated July 3, 1930, and on January 17, 1931, issued public notice of a hearing. At this hearing, held in Washington, D. C., on February 19, 1931, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

The hides and skins covered in this investigation are dutiable at 10 per cent under the tariff act of 1930, and were free of duty under the tariff act of 1922. The maximum change in duty permissible under section 336 would be about 5 per cent ad valorem. In considering the action to be taken in this investigation, this fact has been carefully weighed by the commission.

At the public hearing parties interested raised serious objection to adjusting the rate of duty on the basis of comparisons of prices of foreign and domestic hides and skins of cattle of the bovine species. Adjusting the duties on the cost basis involves many problems, some of which may be briefly summarized, as follows:

(1) The commission believes that if a cost-of-production study of these products is to be made it should cover a rather extensive period. If made at this time it would of necessity cover a considerable period when the articles were on the free list (under act of 1922) and only a very short period when they were dutiable (under act of 1930), and when economic conditions were far from normal.

(2) The production of cattle hides depends largely upon the slaughter of beef cattle and to some extent upon the slaughter of dairy stock. The production of calfskins depends almost entirely upon the slaughter of veal calves, which are a by-product of the dairy industry. Any cost study of hides and skins would therefore involve a consideration of the costs of beef cattle, dairy cattle, and veal calves.

(3) Whether an animal is produced primarily for beef or for dairy products, the hide is a relatively small part of its weight and value. The farmer does not devote his capital, labor, and land to the produc-

tion of hides and skins as such for the market, but to the production of livestock to be slaughtered for meat. The hides are incidental and the principal by-product of the slaughtering industry.

Relative values of beef, hides and skins, and other by-products, controlling factors in allocating costs to the respective products, have for the past 10 years shown wide variations from "normal" relationships owing to causes other than cost of production.

(4) Costs of production of dairy cattle are incurred primarily with the end in view of producing milk and butterfat for sale. The dairy cow is slaughtered as an end-product of this production and her hide is a by-product of this end-product. To arrive at the cost of producing her hide would therefore be difficult, and the data when obtained would be of doubtful value. Even more questionable would be the costs ascertained for calfskins, which are a by-product of calves. Calves are produced primarily neither for meat nor for skins, but to maintain milk and butterfat production.

The question of comparability in this investigation would lead to many difficulties. Hides and skins are imported from more than 50 foreign countries, in a wide variety of grades, weights, and qualities. The nearest approach to comparability between the foreign and domestic product is probably between "frigorifico" steer hides imported from Argentina and certain grades of domestic packer hides. But should the change in rate be limited to these particular classes of hides, only a small proportion of the total hides and skins of the bovine species would be affected.

With the maximum change permissible under the law, little benefit would accrue to the producers or consumers from a change in the rate. If fully effective, a change of 5 per cent ad valorem on the foreign value on the basis of 15-cent hides would be equivalent to about ¾ cent per pound of hide, or approximately 45 cents per hide or per 1,000 pound steer.

As hides and skins are the raw material for leather, a change in the rate of duty on them would probably lead to opening the question of compensatory duties on leather and manufactures of leather.

The commission has given careful consideration to the evidence obtained in this investigation and to the maximum benefits that might accrue to producers or consumers from any change in the rate of duty on hides and skins of cattle of the bovine species within the statutory limitations and is of the opinion that a finding with respect to the rate of duty on these products for the purposes of section 336 is not warranted at the present time.

Respectfully submitted.

HENRY P. FLETCHER,
Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
JOHN LEE COULTER,
ALFRED P. DENNIS,
EDGAR B. BROSSARD,
LINCOLN DIXON,
Commissioners.

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UNITED STATES TARIFF COMMISSION

DRIED EGG PRODUCTS

REPORT TO THE PRESIDENT

ON

THE DIFFERENCES IN COSTS OF PRODUCTION OF DRIED WHOLE EGGS, DRIED EGG YOLK, AND DRIED EGG ALBUMEN, WHETHER OR NOT SUGAR OR OTHER MATERIAL IS ADDED, IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

WITH APPENDIX
PROCLAMATION BY THE PRESIDENT

REPORT No. 25

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CONTENTS

	Page
Letter of transmittal	v
Findings of the commission	1
Conclusions	2
Summary of information obtained in the investigation:	
Rates of duty	3
Relation of dried eggs to shell eggs and frozen eggs	4
Production, imports, and exports of eggs	5
Methods of drying eggs	6
Egg drying in the United States	7
The egg industry and trade of China	7
Imports of dried and frozen egg products into the United States	8
Principal market	9
Representative period of time	9
Cost of material in the United States—	
Grades of eggs used	9
Location of buying markets	9
Season during which eggs are purchased	10
Farm and central market prices for eggs	10
Costs of eggs used by domestic freezers—	
Farm costs of producing eggs	11
Domestic costs of egg drying and of transportation	12
Summary of domestic costs	12
Costs in China	13
Cost comparison between domestic and Chinese products	13
Appendix: A proclamation by the President	17

2 Feb. 1932 Mauve

LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, June 16, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the report of an investigation made by the United States Tariff Commission of differences in costs of production in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, of dried whole eggs, dried egg yolk, and dried egg albumen, whether or not sugar or other material is added.

This report is accompanied by a summary of information obtained by the commission in the investigation.

The draft of the proclamation, in triplicate, is being submitted through the State Department, in compliance with Executive order of November 8, 1929.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

THE PRESIDENT,
The White House.

DRIED EGG PRODUCTS

UNITED STATES TARIFF COMMISSION,
Washington, June 15, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of dried whole eggs, dried egg yolk, and dried egg albumen, in the United States and in the principal competing country for the purposes of section 336 and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation the commission finds that the present rate of duty on dried whole eggs, dried egg yolk, and dried egg albumen, whether or not sugar or other material is added, expressly fixed by the tariff act of 1930; namely, 18 cents per pound, should be increased by the maximum amount permitted by law; namely, to 27 cents per pound.

The commission instituted this investigation on January 23, 1931, in compliance with Senate Resolution 389, dated January 21, 1931. Public notice of the hearing was given on March 11, 1931. At this hearing, held in Washington, D. C., on April 16, 1931, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. Dried eggs are not used directly as such for consumption as food in the United States, but as materials for certain manufacturing industries which either combine them with other food materials or use them in certain industries. For a limited number of such uses, only dried eggs will serve, and the quantity so used accounts for about four-fifths of the domestic consumption. For certain other manufacturing uses, dried eggs are interchangeable with frozen eggs and with eggs in the shell, although for these purposes frozen eggs have largely displaced the dried forms during the last 10 years.

2. There has been little drying of eggs in the United States since 1916, in spite of a large increase in the duty under the act of 1922. Small quantities of eggs were dried in 1927 and again in 1930 and 1931. Practically the entire consumption of dried eggs, therefore, consists of the products imported from China. In terms of shell egg equivalent, the imports of dried eggs during the last three years have equaled 1.6 per cent of the domestic production of shell eggs and one-fourth of the domestic production of frozen eggs. Although imports have fluctuated considerably from year to year, there has been no general trend upward or downward during the last decade. Expressed in terms of shell egg equivalent, the largest item in imports is egg albumen, and the next largest, egg yolks, imports of dried whole eggs being relatively small.

3. The 3-year period 1928–1930 is a representative period and has been used as the basis of comparison in this investigation.

4. China is the principal competing country.

5. Dried whole eggs, dried egg yolk, and dried egg albumen imported from China are like or similar to dried whole eggs, dried egg yolk, and dried egg albumen produced in the United States.

6. The principal market in the United States for such dried egg products is New York City.

7. The cost of production of such products, as defined in section 336 (h) (4), was not readily ascertainable for the principal competing country, and the commission, in accordance with section 336 (e) (2) (A), accepted as evidence thereof the weighted average invoice prices of imports from that country.

8. In computing the domestic costs of the dried egg products actual costs of drying obtained from establishments which have engaged in that business have been used by the commission. With respect to raw materials, however, the commission has used, in lieu of the prices paid by a limited number of egg dryers, the weighted average of farm and central market prices of breaking-stock eggs delivered at freezing plants. This gives a broad basis for raw material costs because eggs purchased for drying in an important egg-drying industry must be bought in the same region, during the same period of the year, and be of the same quality, as eggs purchased for freezing, which already is an important industry.

9. Cost of production ascertained in accordance with section 336:

(A) The cost of production of dried whole eggs in the United States, including a transportation cost of 1.6 cents per pound from the producing plants to the principal market in the United States, was 89.5 cents per pound for the period covered by the investigation. The corresponding cost of production of dried whole eggs in the principal competing country, as evidenced by invoice prices, including cost of transportation and delivery to the principal market, was 47.2 cents per pound. For dried egg yolk, the cost, similarly computed, for the domestic product averaged 80 cents per pound and for the product imported from the principal competing country 46.8 cents per pound. For dried egg albumen the cost of production, similarly computed, averaged 107.3 cents per pound for the domestic product and 47.8 cents for the product of the principal competing country.

(B) No other relevant factors constituting an advantage or disadvantage in competition were disclosed in the course of the investigation.

The total cost of production of the several dried egg products in the United States, including transportation and other delivery costs to the principal market, thus exceeded the corresponding costs of the product of the principal competing country by the following differences: Dried whole egg, 42.3 cents per pound; dried egg yolk, 33.2 cents per pound; and dried egg albumen, 59.5 cents per pound.

CONCLUSIONS

The commission finds it shown by the investigation:

(*a*) That the duty expressly fixed by statute on dried whole eggs, dried egg yolk, and dried egg albumen, whether or not sugar or other material is added; namely, 18 cents per pound, does not equalize the differences in costs of production, including transportation and delivery to the principal market in the United States, of the domestic articles and of the like or similar foreign articles produced in the principal competing country;

(*b*) That the differences in costs are such as to warrant an increase in the duty by the maximum amount permitted by law; namely, by 9 cents per pound;

(*c*) That the rate of duty necessary to equalize such differences, within the limits permitted under the statute, is 27 cents per pound.

Appended to this statement of findings is a summary of information obtained in the investigation.

Respectfully submitted.

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Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
JOHN LEE COULTER,
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Commissioners.

SUMMARY OF INFORMATION OBTAINED IN THE INVESTIGATION WITH RESPECT TO DRIED EGG PRODUCTS

Rates of duty.

The tariff act of 1930 (par. 713) defines dried egg products as follows: 'dried whole eggs, dried egg yolk, and dried egg albumen, whether or not sugar or other material is added," and fixes a uniform rate of 18 cents per pound. The act of 1922 imposes the same rate. In the following table the rates on these products are compared with the rates on shell eggs and frozen egg products and with the rates on all egg products under the act of 1913.

Tariff act of—	Shell eggs	Frozen egg products	Dried egg products
	Cents per dozen	*Cents per pound*	*Cents per pound*
1930	10	11	18
1922	8	[1] 6	18
1913 [2]	Free.		
Whole eggs	----------	2	10
Whites (albumen)	----------	1	3
		Per cent	*Per cent*
Yolks	----------	10	10

[1] 7. 5 cents per pound by presidential proclamation, effective Mar. 22, 1929, under section 315.
[2] Pars. 4, 203, 204, 478.

In the administration of the tariff act of 1913 it was found possible to evade the duty on dried whole eggs—the egg product then most used in this country—by importing the dried yolks and the albumen as such and mixing them after entry. As a corrective measure the duty on all dried products was made 18 cents per pound under the tariff act of 1922. This rate was adjusted to the duty of 6 cents per pound on frozen egg products on the basis of the "recovery value" of dried whole eggs when reconstituted into the liquid form by the addition of water.[1] In view of increases made in the duties on shell eggs and

[1] When dried in China, 3.56 pounds of liquid whole egg yield 1 pound of dried, but only 2 pounds of water can be added to the pound of dried and have a reconstituted liquid whole egg approximately equal to 3 pounds of fresh or frozen whole egg meats in baking properties.

on frozen egg products under the tariff act of 1930, the levy on dried egg products is now out of line with the other duties.

Relation of dried eggs to shell eggs and frozen eggs.

Dried egg products consist of dried whole eggs ("mixed" or unseparated), dried egg yolks, and dried egg albumen (whites). In drying liquid egg meats, approximately 90 per cent of the water is removed, leaving a powdered or flaked desiccated product.

Eggs enter into consumption in the shell, frozen (either whole meats or yolks or albumen), or dried. These are only to a limited degree interchangeable or competitive with one another. Neither frozen nor dried eggs are used as such in the ordinary household or in public eating places. The public taste demands eggs in the shell. In the dried and frozen forms, eggs are used only in combination with other food materials or (in the case of dried eggs) for certain industrial uses. Many, if not most, manufacturers using eggs as an ingredient of their food products prefer eggs in the dried or frozen form rather than in the shell because of the greater convenience in handling them; other manufacturers will use dried or frozen eggs only when they are considerably cheaper than shell eggs. For many of these special purposes dried and frozen eggs are technically interchangeable, but during the last 10 years the frozen have largely displaced the dried egg products in these uses. For certain purposes, however, frozen eggs can not be used. To-day (1931) the trade estimates that nearly 80 per cent of the consumption of dried eggs is in the manufacture of products in which frozen or shell eggs can not be used.

At the present time (1931), the use of dried yolks in the United States is chiefly in prepared pancake, pastry, cake, and doughnut flours, for which frozen or liquid yolks can not be utilized. Dried yolks are also used by manufacturers of ice-cream powders or "mixes," by a few small manufacturers of noodles and macaroni, and by some small bakers. Formerly there was an extensive use of dried yolks in cakes, noodles, macaroni, and mayonnaise, but, except for the small uses mentioned, frozen yolks have, in the last 10 years, largely displaced dried yolks where the two are interchangeable. More recently this displacement has extended to large-scale ice-cream manufacture.

The small domestic consumption of dried whole eggs is in prepared flours, for which neither fresh nor frozen eggs can be used, and to some extent in pie baking, but for the latter frozen whole egg has been largely used since 1921.

Egg albumen (dried whites) is consumed in baking powders, in certain candies and marshmallows, and in prepared meringue or whipping powders. Neither frozen nor liquid whites can be used in baking powder, in the other prepared powders nor, apparently, in wholesale marshmallow manufacture. In the last few years there has been an extensive displacement of dried whites by the frozen in the manufacture of certain candies; i. e., packaged goods which move rapidly through retail channels. Many large pie bakers are also now using frozen whites in their meringues for soft pies. For "white" cakes, frozen or liquid whites have entirely replaced dried whites.

As there is no effective interchangeability at present in domestic uses, there is little direct competition between domestic shell eggs and imported dried egg products, and as there is little effective com-

petition under present conditions of demand, there is only a limited direct competition between domestic frozen eggs and imported dried eggs. What direct competition there is centers on the 20 per cent of dried egg products that can be displaced by domestic frozen eggs. This 20 per cent is equivalent in liquid form to approximately 5 per cent of the domestic production of frozen eggs during the last three years, and to about 0.3 per cent of the domestic production of shell eggs. A domestic egg-drying industry which would supply the home demand would use 25 per cent as much raw material as the American frozen egg industry, or approximately 1.6 per cent of the United States production of shell eggs. (See Table 1, p. 6.)

Production, imports, and exports of eggs.

On the average during the three years 1928–1930, the production of shell eggs in the United States is estimated at 2,159,000,000 dozen. Imports of shell eggs in the same period were insignificant. The quantity broken for freezing averaged about 140,000,000 dozen and the quantity of frozen eggs imported was equal to about 9,000,000 dozen, so that frozen eggs represented about 7 per cent of the combined consumption of shell, frozen, and dried eggs. The production of dried eggs during this period was extremely small. Imports of dried eggs converted to the equivalent of shell eggs were equal to 35,000,000 dozen, or 1.5 per cent of the combined consumption of the three.

Detailed figures for a series of years are shown in Table 1. It will be seen that the domestic production of shell eggs has varied only within narrow limits. In response to the greater demand for frozen eggs there has been a rapid increase during recent years in the quantity of domestic eggs broken for freezing. The imports of both frozen and dried eggs have fluctuated widely but with no marked trend in either direction. With the increase in the domestic production of frozen eggs, imports of frozen and dried eggs, which at the beginning of the decade exceeded the domestic production of frozen eggs, have declined until they are now much less than that of production.[2]

The United States exports some eggs in the shell. On the average during the five years 1926–1930 the annual exports amounted to

[2] With reference to statements that heavy imports of egg products during any calendar year result in excessive residual domestic cold storage supplies on March 1, following, and that these accumulated stocks depress the prices of shell eggs during the ensuing farm year, particularly during the season of surplus production (Mar. 1 to Aug. 1), if true, the converse should also be true. Only twice out of 9 years; i. e., in 1923 and 1926, were the residual cold storage holdings of shell eggs and frozen eggs larger after a year of increased imports, or was the converse true. Only three times out of 9 years; i. e., in 1922, 1923, and 1924, did seasonal farm prices in the chief surplus region show an increase or a decrease subsequent to years of decreased or increased imports. It appears, therefore, that some factor or factors, other than imports, were chiefly responsible for the occasional low prices. The following tabulation compares imports during given calendar years with residual cold-storage stocks the following March 1. Farm prices are shown in Table 4, p. 10.

Residual cold-storage holdings on March 1, of shell eggs and frozen eggs, and shell egg equivalent of imports of egg products, in terms of 30-dozen cases

Year	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931
Imports	1,441	1,538	876	1,170	1,634	1,507	1,030	1,005	1,518	1,260	------
Residual cold storage holdings	------	390	430	704	346	768	826	961	1,104	1,089	2,519
Relation of change in imports to change in residual holdings	------	Base.	Agrees.	Disagrees.		Agrees.	Disagrees.				

21,237,000 dozen. There is also a small exportation of frozen eggs and egg products, the average annual quantity for this same period being 443,000 pounds per annum. There are no exports of dried egg products.

TABLE 1.—*Domestic production of shell eggs: Shell egg equivalent of imports of egg products,*[1] *domestic eggs broken for freezing, shell egg equivalent of domestic consumption of egg products, and the percentage of this consumption supplied by domestic frozen eggs*

[In thousands of dozens; i. e., 000 omitted]

Year	Domestic production of shell eggs	Domestic eggs broken for freezing	Per cent of production broken for freezing	Shell egg equivalent of imports of egg products					Shell egg equivalent of domestic consumption of egg products	Per cent of consumption supplied by domestic frozen eggs
				Frozen	Dried		All dried egg products	Frozen and dried		
					Egg albumen	Yolks and whole eggs				
1921	----------	39,394	---------	15,684	16,538	18,196	34,734	50,418	89,812	44
1922	----------	42,210	---------	14,586	20,580	18,659	39,239	53,825	96,035	44
1923	----------	60,873	---------	5,736	17,057	7,835	24,892	30,628	91,501	67
1924	[2] 1,913,245	49,185	2.5	9,966	18,440	12,528	30,968	40,934	90,119	55
1925	2,003,000	67,352	3.4	19,224	19,710	18,380	38,090	57,314	124,666	54
1926	2,120,000	78,892	3.7	15,872	21,637	15,244	36,881	52,753	131,645	60
1927	2,162,000	110,695	5.1	6,150	21,074	8,819	29,893	36,043	146,738	76
1928	2,171,000	126,915	5.8	6,998	17,220	10,954	28,174	35,172	162,037	78
1929	2,145,000	133,030	6.2	13,310	21,866	14,962	39,828	53,138	186,169	71
1930	2,163,000	158,630	7.3	6,836	21,467	15,792	37,259	44,095	202,725	78

[1] Shell egg equivalent in terms of domestic breaking-stock eggs.
[2] Bureau of the Census; figures for other years based on data supplied, for use in a former investigation, by the Bureau of Agricultural Economics, U. S. Department of Agriculture.

Methods of drying eggs.

Commercial egg-drying machinery seems to have been developed in the United States through an adaptation of machines originally designed for drying milk. Many years ago such machines were set up in China. At present (1931), both in China and in the United States, egg yolks are dried chiefly by the spray process which results in a finely powdered product.[3] Some whole eggs are dried by the spray process in China, and because of the lower labor charges, this method has recently been used in the United States. A drawback to this method, however, is that the high temperature used causes part of the albumen to coagulate, and thereby makes the whole egg powder less desirable for some uses. To prevent coagulation most Chinese manufacturers dry the whole egg on metal belts or drums revolving through chambers heated not above about 135° F. They also dry some yolk by this method.

In China egg whites are usually dried on belts, or drums, after fermentation has taken place and, the acidity has been neutralized by ammonia. To obtain the best and most soluble grades, the whites are placed in shallow trays in cabinets held not above 125°, which is low enough to prevent coagulation. Further drying then may be done on screens, at about 110° to 115°. Egg albumen is always packed in tin-lined wooden cases.

[3] Liquid yolk is forced by heavy pressure through a nozzle into the top of a tower heated to a temperature of about 163° to 175° F. The dried yolk falls as a fine powder. In China the better grades are packed in sealed, tin-lined wooden cases usually of 200 pounds net weight. A part of the output is packed in barrels or casks lined with sized paper. In the United States, where storage facilities are better and where consumers are relatively close at hand, the lined barrels or casks were used in 1927, 1930, and 1931.

In the United States there has been some experimental drying of albumen by the spray method, but agitation caused by the pressure in the nozzle and by the high temperature used (not less than 163° F.) coagulates the albumen and largely destroys its whipping property.[4]

Egg drying in the United States.

The commercial production of dried eggs in the United States ceased after 1916. In 1927 deliveries from China were interrupted by civil war. The prices of shell eggs in this country were then quite low, and two domestic plants dried several hundred thousand pounds of whole eggs and yolks. These two plants operated again for a short time in 1930, when domestic shell eggs sold for less than in 1927, and again for a brief period in 1931, when prices were still lower. The output of dried eggs at all times was very small as compared with imports and was insignificant as compared with the domestic production of frozen eggs or of shell eggs. There are, however, a large number of milk-drying plants in the United States, a majority of them in the chief egg surplus region, and they can be readily adapted to the drying of eggs. But because of the low prices at which imported egg products have been available, there has been little incentive for these plants to engage in egg drying.

The egg industry and trade of China.

The only country in the world which produces dried eggs in significant quantities is China. China is also the only country from which the United States imports any considerable quantity of eggs in any form. It is, therefore, the principal competing country for the purposes of this investigation.

There are no dependable estimates of total shell egg production in China. Although eggs are produced throughout that country, a surplus over local consumption is found only in the central Provinces where the exports to the United State originate. Egg production in China is practically all incidental to other farming operations. It is rare that an individual owner of chickens gets more than six eggs from his flock a day, even in the height of the laying season.

There are no statistics of production of either dried or frozen eggs in China, but the exports substantially represent the total output, since virtually no dried or frozen eggs are used in that country itself. The total exports of these products with the separate figures for shipments to Great Britain and the United States are shown for recent years in Table 2, which also shows the large exports of shell eggs. The United States is in most years the most important single outlet for Chinese dried egg products considered as a whole, and especially for dried albumen and dried yolks.

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[4] In 1929 one company tray-dried about 100,000 pounds of liquid whites, partly to salvage them. In 1931 another company, by a modified spray method which eliminates the pressure nozzle, and by a painstaking heat control, asserts that it has developed a method which is adapted to mass production methods and labor costs in the United States.

TABLE 2.—*Eggs and egg products: Exports from China*

[In thousands of pounds; i. e., 000 omitted]

	1924	1925	1926	1927	1928	1929
Dried egg albumen:						
Great Britain	3,617	2,522	2,328	1,395	2,230	1,685
United States	2,950	4,086	3,468	2,479	2,327	3,498
All other countries	2,229	2,086	2,004	2,528	2,960	3,269
Total	8,796	8,694	7,800	6,402	7,517	8,452
Dried yolks:						
Great Britain	967	688	656	1,409	887	991
United States	3,800	6,036	3,375	3,066	2,955	6,022
All other countries	4,001	4,501	4,554	4,124	4,586	5,198
Total	8,768	11,225	8,585	8,599	9,428	12,211
Dried whole eggs:						
Great Britain	2,083	7,987	1,927	1,039	980	1,419
United States	555	2,463	788	270	1,491	1,058
All other countries	430	843	197	370	447	301
Total	3,068	11,293	2,912	1,679	2,918	2,778
Frozen egg products:						
Great Britain	52,376	69,782	81,027	57,491	67,555	86,285
United States	7,546	13,846	12,177	4,965	13,496	9,902
All other countries	14,043	19,021	19,936	21,718	25,885	31,290
Total	73,965	102,649	113,140	84,174	106,936	127,477
Shell eggs (1,000 dozen):						
Great Britain	9,786	12,113	11,239	5,752	12,784	15,904
United States	189	136	36	88	89	68
All other countries	68,713	51,980	50,391	42,745	38,172	33,451
Total	78,688	64,229	61,666	48,585	51,045	49,423

Imports of dried and frozen egg products into the United States.

As already stated, the only source of imports of either frozen or dried eggs into the United States is China. The general relation between these imports and domestic egg production has already been stated. Table 3, expressed in terms of actual weight of the imported product rather than of shell egg equivalent, shows the details for the last 10 years.

TABLE 3.—*Imports for consumption of dried and frozen egg products* [1]

[In thousands of pounds: i. e., 000 omitted]

Year	Imports of dried eggs				Imports of frozen eggs, total
	Whole	Yolks	Albumen	Total	
1921	2,001	[2] 6,325	2,643	10,969	18,298
1922	3,008	[2] 4,960	3,289	11,257	17,015
1923	1,595	1,553	2,726	5,874	6,691
1924	1,590	4,016	2,947	8,553	11,631
1925	2,521	5,591	3,150	11,262	22,428
1926	1,575	5,461	3,458	10,484	18,517
1927	880	3,209	3,368	7,457	7,174
1928	852	4,371	2,752	7,976	8,164
1929	1,474	5,475	3,964	10,923	15,529
1930	1,328	6,191	3,452	10,971	7,975

[1] Data from Bureau of Foreign and Domestic Commerce, Department of Commerce.
[2] Estimated from total imports of dried and frozen, not reported separately in 1921 and 1922.

Principal market.

New York is the principal market in the United States for dried egg products. More than two-thirds of the total imports for consumption during 1930 were entered at the port of New York and virtually all the entries through that port are merchandised in the New York market. The cost comparison has, therefore, been based on delivery to New York.

Representative period of time.

Prices of eggs, which largely determine the cost of dried egg products, vary considerably from year to year; consequently, it is desirable in a cost comparison to use average figures for a period of years. The three latest years, 1928 to 1930, have been used for this purpose in this investigation and are considered representative. The commission has used the dollar costs of Chinese dried egg products as ascertained from the books of account of importers for the three years ended in 1930, as evidence of cost of production of imported dried egg products for the purposes of this investigation.

Cost of material in the United States.

More than nine-tenths of the cost of dried eggs in the United States consists of the amount paid for the shell eggs. This factor is, therefore, determining in the total cost. An important egg-drying industry in the United States must use as raw material eggs of the same quality, purchased in the same region, and purchased during the same period of time as the eggs used by the domestic egg-freezing industry, which is already conducted on a large scale.

Grades of eggs used.—Not counting plants in Chicago, about two-thirds of the egg-freezing plants in the United States are located in the chief region of surplus egg production. These plants use mostly ungraded, or farm-run eggs, also commonly designated as "shippers' firsts." The other breaking plants are for the most part located in Chicago or New York, and break chiefly "seconds" and "undergrades" which have been sorted out in order to maintain the quality of the eggs which are sold for immediate consumption or which are to enter cold storage in the shell. Owing to the rapid transportation facilities in the United States this breaking stock used by freezers in central markets is sold so "close to the nest" in point of time that egg meats of good quality are obtained.

Eggs of the average quality actually used by freezers in the United States would, if used for egg drying, furnish a product like or similar in quality to the dried egg products imported from China, considered as a whole. In China, owing to primitive methods of transportation, when shell eggs reach drying plants in the treaty ports, they are so "far from the nest" in point of time that only selected, carefully graded eggs can be used by such plants. The egg driers at interior points, which turn out about one-half of the Chinese output, are not under the same necessity and use breaking stock of lower quality.

Location of buying markets.—The chief region of the United States producing eggs in excess of local requirements consists of the States of Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Nebraska, Kansas, Iowa, and Missouri, there being also some surplus in North and South Dakota. This region supplies about 85 per cent of the eggs used as breaking stock by the freezers and at least as large a proportion of the eggs broken during the season of heavy production.

A large egg-drying industry would have to buy its supplies in the same region.

The cost of eggs in this surplus region of the United States furnishes a proper basis for comparison with the cost of the eggs entering into the Chinese dried egg products, for the reason that the Chinese driers obtain their supplies not from the whole of China but from regions which have a surplus.

Season during which eggs are purchased.—The period of heavy laying of eggs on farms in the chief surplus region extends from about March 1 to August 1, and not less than four-fifths of the purchases of eggs by freezers are made during these months. A large egg-drying industry would have to make its purchases chiefly during the same period of time. The cost of eggs purchased during these months of large production in the principal surplus region of the United States furnishes a proper basis for comparison with the eggs which enter into the dried egg products imported from China. Most of the eggs used by the Chinese driers are also produced during the spring and summer months when laying is heaviest; purchases of eggs for both drying and freezing take place principally between March 1 and August 1.

Farm and central market prices for eggs.—Two different methods have been used by the commission in determining the cost of eggs suitable for drying in the region of surplus production and during the months when most of the breaking stock is purchased. One method is based on the prices of eggs as reported by authoritative organizations and the other, which is used as a check on the first, is based on the actual cost of eggs to representative leading egg-freezing plants. Both methods have been applied to the 3-year period 1928–1930.

Since, as already stated, about two-thirds of the breaking stock consists of ungraded eggs purchased in local markets and one-third of undergrades purchased in central markets, it is evident that the average prices of all breaking-stock eggs may be determined substantially by combining into an average weighted by these ratios (1) the prices received by farmers of the surplus region for eggs as reported by the Department of Agriculture (plus the cost of handling and delivery) and (2) the prices quoted for breaking stock in the principal central markets, Chicago and New York. These two sets of prices, during the season March 1 to July 31, together with the weighted average, are shown for each year since 1921 in Table 4.

TABLE 4.—*Shell egg prices: Farm prices in the chief surplus region and market prices of breaking-stock grades, in Chicago and New York City, seasonal averages, March 1 to July 31, inclusive*

Year	Farm prices [1] in surplus region	Farm prices of breaking-stock grades in—			Weighted average farm and market prices
		Chicago	New York	Both markets	
1921	21.0	22.3	25.3	23.8	21.9
1922	20.0	21.2	23.5	22.3	20.8
1923	21.0	23.0	25.4	24.2	22.1
1924	19.0	21.7	23.8	22.7	20.2
1925	25.0	27.6	29.6	28.6	26.2
1926	24.0	26.0	28.0	27.0	25.0
1927	19.0	21.1	22.2	21.7	19.9
1928	24.0	26.1	27.8	26.9	25.0
1929	25.0	27.6	29.1	28.8	26.2
1930	18.0	20.3	22.2	21.3	19.1
Average 1928–1930	22.3	24.7	26.4	25.6	23.4

[1] Ungraded. Data from Bureau of Agricultural Economics, U. S. Department of Agriculture.

During the 3-year period covered by the commission's cost comparison, the weighted average price as shown by Table 4 was 23.4 cents per dozen. To this must be added 0.85 cent per dozen to cover the cost of handling and of delivery to freezing plants. This latter figure was determined in the commission's previous investigation of frozen eggs covering the year 1926. Adding the two figures gives a total cost at plant of 24.25 cents per dozen. A dozen eggs of breaking stock yields 1⅛ pounds of liquid egg meats, and it costs 1.9 cents per pound to remove the meats from the shell. The average price for eggs is, therefore, equal to a cost of liquid whole eggs at plant of 22.7 cents per pound.

In determing the cost of liquid yolks and whites from that of liquid whole eggs, the average market values of these frozen products, respectively, during the three years covered by the investigation have been used as a basis of proration. It was found that liquid yolks are valued at 146.1 per cent and liquid whites at 56.5 per cent of the value of liquid whole eggs. On the basis of 22.7 cents per pound for liquid whole eggs, the values become 33.2 cents for liquid yolks and 12.8 cents for liquid whites.

Costs of eggs used by domestic freezers.

The actual cost of raw material purchased by egg freezers during the period covered by the investigation was ascertained as a check on the results of the method already described. For this purpose two bases were used: (1) Initial contract prices of frozen egg products, Atlantic seaboard delivery, submitted by a number of companies operating principally in the chief surplus region, reduced to the basis of the value of liquid eggs at the freezing plants by deducting the average charge of transportation from plant to seaboard and the average cost of cans and freezing; (2) the actual prices paid for shell eggs at a limited number of breaking plants, nearly all of which are located in the chief surplus region. These two methods give results differing by only an insignificant fraction, and the first gives exactly the same figure, 22.7 cents per pound for liquid whole eggs, as was ascertained from farm and central market prices.

Farm costs of producing eggs.—It has been suggested that instead of using the prices of breaking-stock eggs as a basis for determining the cost of production of dried egg products, use should be made of the farm costs of production of eggs.

An investigation of the costs of production of eggs would be difficult and would give only approximate results. On most farms, especially in the region of surplus production, the keeping of poultry is not a major but an auxiliary and minor enterprise. About 10 per cent of this total production occurs on specialized poultry farms and as much on general farms where poultry is an important but a secondary enterprise. About 80 per cent comes from general farms where poultry is more or less incidental and is cared for chiefly by the farm women and children. It is such farms that supply nearly all of the eggs processed into egg products in the United States. The hens on such farms forage for a large part of their feed during six to eight months of the year. Even in the late fall and winter months, when considerable hand feeding is done, no record is usually kept of the labor performed, or of the feed actually fed. In the circumstances, dependable cost data would be difficult to obtain.

In this investigation counsel for domestic producers of eggs and egg products submitted an estimate of the year-round farm cost of production of eggs in the surplus region of the United States which does not materially exceed the seasonal price figures used in the commission's comparison. This estimated production cost was 23.7 cents per dozen at the farm. This figure plus the cost of handling and delivery to freezing plants, when reduced to the basis of liquid egg meats, gives an average of 23.6 cents per pound as compared with the figure of 22.7 cents per pound used in the cost comparison.

Domestic costs of egg drying and of transportation.

The commission has obtained the cost of converting liquid whole eggs and yolks into the spray forms from several plants for operations during 1930 and 1931. In addition cost statements have been submitted by several parties in interest who have dried limited quantities of the different egg products. A part of the latter data, however, is based on purely experimental "runs" and is not used in the following cost calculations.

For spray-dried whole eggs, the average conversion cost from the liquid form at several plants is 3.9 cents per pound. For spray egg yolks, this cost averages 3.3 cents per pound. Several submitted costs show an average of 11.2 cents per pound for converting liquid whites into dried egg albumen by the tray-drying method. An average charge for containers and labor of 1.1 cents per pound must be added to these costs.

The transportation charge to deliver the dried egg products from middle and central western plants to New York City averages 1.6 cents per pound. If shipped in less than car lots, this transportation charge would be much higher.

Operating costs of the establishments in the United States which have engaged in recent years in egg drying may not give an entirely accurate indication of what drying costs would be if conducted on a much larger scale. The cost of raw material, however, amounts to about 95 per cent of the total cost, packed at plant, for whole eggs and yolks, and to nearly 90 per cent for egg albumen. In view of these facts, any margin of error in the drying costs is of minor importance.

Summary of domestic costs.

The foregoing details of the domestic costs of production of dried eggs, including raw material, drying and packing, and transportation to New York are summarized in Table 5.

TABLE 5.—*Cost of domestic dried egg products, delivered at New York, 1928–1930*

[Cents per pound]

	Whole eggs	Yolks	Albumen (whites)
Raw material:			
(1) Cost, at plant, of liquid whole egg meats, including breaking charge	22.7		
(2) Ratio of value of yolks and whites to whole eggs, per cent	100.0	146.1	56.5
(3) Value, at plant, of liquid whole eggs, yolks, and whites	22.7	33.2	12.8
(4) Drying ratio—pounds of liquid material per pound of dried product	3.65	2.23	7.30
(5) Cost of liquid raw material per pound of dried product	82.9	74.0	93.4
Drying cost	3.9	3.3	11.2
Containers and packing	1.1	1.1	1.1
Total cost, at plant, of dried egg products	87.9	78.4	105.7
Transportation to New York	1.6	1.6	1.6
Total delivered cost	89.5	80.0	107.3

Costs in China.

It is not practicable to ascertain the cost of producing shell eggs in China. It was likewise found impracticable to ascertain either actual prices paid by Chinese egg driers for their raw material or the cost of drying. In accordance with the law, therefore, the commission has used the prices of imported dried egg products as evidence of cost of production in China.

Table 6 shows the landed costs of spray whole egg, spray yolk, and egg albumen imported from China during the three years 1928–1930, as obtained from the records of the principal importers.

TABLE 6.—*Imported dried egg products: Landed costs c. i. f. New York*

[Cents per pound]

Year	Spray whole egg	Spray yolk	Egg albumen
1928	46.9	48.7	52.6
1929	59.4	51.9	49.9
1930	38.9	38.7	41.1
3-year average	47.2	46.8	47.8

Cost comparison between domestic and Chinese products.

Table 7 summarizes the costs of domestic and imported dried egg products discussed in the foregoing pages. It shows the total domestic cost for whole eggs delivered to New York, 89.5 cents, as compared with the cost of the Chinese product, 47.2 cents, the excess of the domestic cost being 42.3 cents. The corresponding excess of the domestic cost of dried yolks is 33.2 cents per pound and of dried albumen, 59.5 cents.

TABLE 7.—*Comparison of cost of domestic and imported dried egg products, 1928–1930*

[Cents per pound]

	Whole eggs	Yolks	Albumen
Domestic costs:			
Raw egg material	82.9	74.0	93.4
Drying, containers, and packing	5.0	4.4	12.3
Transportation to New York	1.6	1.6	1.6
Total	89.5	80.0	107.3
Foreign costs:			
Cost plus transportation and delivery to New York	47.2	46.8	47.8
Excess of domestic over foreign costs	42.3	33.2	59.5
Present duty	18.0	18.0	18.0

The foregoing cost differences all exceed the present duty by more than 50 per cent, but are much higher for egg albumen and much lower for yolks than for dried whole eggs.

On the basis of the cost figures shown, however, and by reason of the 50 per cent limitation of the statute, it is impossible to make the necessary distinction in rates on the three dried egg products. Any increase in the duty, if made, must apply equally to all of them.

APPENDIX

INCREASING RATE OF DUTY ON DRIED WHOLE EGGS, DRIED EGG YOLK AND DRIED EGG ALBUMEN

By the President of the United States of America

A Proclamation

WHEREAS, under and by virtue of section 336 of Title III, Part II, of the act of Congress approved June 17, 1930 (46 Stat. 701), entitled "An act to provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, to protect American labor, and for other purposes," the United States Tariff Commission has investigated the differences in costs of production of, and all other facts and conditions enumerated in said section with respect to, dried whole eggs, dried egg yolk, and dried egg albumen, whether or not sugar or other material is added, being wholly or in part the growth or product of the United States and of and with respect to like or similar articles wholly or in part the growth or product of the principal competing country;

WHEREAS in the course of said investigation a hearing was held, of which reasonable public notice was given and at which parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard;

WHEREAS the commission has reported to the President the results of said investigation and its findings with respect to such differences in costs of production;

WHEREAS the commission has found it shown by said investigation that the principal competing country is China, and that the duties expressly fixed by statute do not equalize the differences in the costs of production of the domestic articles and the like or similar foreign articles when produced in said principal competing country, and has specified in its report the increase in the rate of duty expressly fixed by statute found by the commission to be shown by said investigation to be necessary to equalize such differences; and

WHEREAS in the judgment of the President such rate of duty is shown by such investigation of the Tariff Commission to be necessary to equalize such differences in costs of production;

NOW, THEREFORE I, HERBERT HOOVER, President of the United States of America, do hereby approve and proclaim an increase in the rate of duty expressly fixed in paragraph 713 of Title I of said act on dried whole eggs, dried egg yolk, and dried egg albumen, whether or not sugar or other material is added, from 18 cents per pound to 27 cents per pound, the rate found to be shown by said investigation to be necessary (within the limit of total increase provided for in said act) to equalize such differences in costs of production.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 24″ day of June, in the year of our Lord nineteen hundred and thirty-one, and of the Independence of the United States of America the one hundred and fifty-fifth.

[SEAL.]

HERBERT HOOVER.

By the President:

HENRY L. STIMSON,
Secretary of State.

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UNITED STATES TARIFF COMMISSION

HEMP CORDAGE

REPORT TO THE PRESIDENT

ON

THE DIFFERENCES IN COSTS OF PRODUCTION OF CORDAGE INCLUDING CABLES, TARRED OR UNTARRED, COMPOSED OF THREE OR MORE STRANDS, EACH STRAND COMPOSED OF TWO OR MORE YARNS, WHOLLY OR IN CHIEF VALUE OF HEMP, IN THE UNITED STATES AND IN THE PRINCIPAL COMPETING COUNTRY, AS ASCERTAINED PURSUANT TO THE PROVISIONS OF SECTION 336 OF TITLE III OF THE TARIFF ACT OF 1930

WITH APPENDIX
PROCLAMATION BY THE PRESIDENT

REPORT No. 26
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HENRY P. FLETCHER, Chairman

THOMAS WALKER PAGE, Vice Chairman

JOHN LEE COULTER

ALFRED P. DENNIS

EDGAR B. BROSSARD

LINCOLN DIXON

SIDNEY MORGAN, Secretary

Address all Communications

UNITED STATES TARIFF COMMISSION

WASHINGTON, D. C.

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CONTENTS

	Page
Letter of transmittal	IV
Findings of the commission	1
Conclusion	2
Summary of information obtained in the commission's investigation:	
Rates of duty	3
Tariff considerations	3
Scope of the investigation	4
Description and uses of the article	4
Domestic production	4
Exports	5
Imports and principal competing country	5
Markets	6
Costs of production in the United States	6
Evidence of costs of production in Italy	6
Transportation and other delivery charges	6
Cost comparisons	6
Appendix: A proclamation by the President	11

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LETTER OF TRANSMITTAL

UNITED STATES TARIFF COMMISSION,
Washington, June 16, 1931.

MY DEAR MR. PRESIDENT: I have the honor to transmit herewith the report of an investigation made by the United States Tariff Commission of differences in costs of production in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, of cordage, including cables, tarred or untarred, composed of three or more strands, each strand composed of two or more yarns, wholly or in chief value of hemp.

This report is accompanied by a summary of information obtained by the commission in the investigation.

The draft of the proclamation, in triplicate, is being submitted through the State Department, in compliance with Executive order of November 8, 1929.

Respectfully,

HENRY P. FLETCHER, *Chairman.*

THE PRESIDENT,
The White House.

HEMP CORDAGE

UNITED STATES TARIFF COMMISSION,
Washington, June 15, 1931.

To the PRESIDENT:

The United States Tariff Commission herein reports the results of an investigation of the differences in costs of production of hemp cordage, in the United States and in the principal competing country, for the purposes of section 336 of Title III of the tariff act of 1930, and its findings with respect thereto.

Upon consideration of the facts obtained in this investigation, the commission finds that the present rate of duty on cordage, including cables, tarred or untarred, composed of three or more strands, each strand composed of two or more yarns, wholly or in chief value of hemp expressly fixed in paragraph 1005 (a) (3) of the tariff act of 1930; namely, 3¼ cents per pound, should be increased to the maximum amount premitted under section 336, namely, 4⅞ cents per pound. The duty on this commodity previous to the act of 1930 was 23¼ cents per pound, 18¼ cents per pound, or 2½ cents per pound, according to size and condition. Halibut fishing line, the most important type of hemp cordage in domestic production, was dutiable at the 23¼-cent or 18¼-cent rate.

The commission instituted this investigation on March 21, 1931, as the result of an application from domestic manufacturers. Public notice of the hearing was given on March 30, 1931. At this hearing, held in Washington, D. C., on May 6, 1931, parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard, as required by law.

FINDINGS OF THE COMMISSION

1. The domestic consumption of cordage, including cables, tarred or untarred, composed of three or more strands, each strand composed of two or more yarns, wholly or in chief value of hemp (hereinafter referred to as hemp cordage), in 1930 amounted to about 800,000 pounds. Of this quantity, 28 per cent was imported. Of the total domestic production in 1930, halibut fishing lines constituted a larger proportion than any other type, whereas of the total imports in 1930, halibut fishing lines constituted a minor proportion. Imports include types or qualities of hemp cordage not regularly produced in the United States.

2. The year 1930 is a representative period for the purpose of this investigation.

3. Italy is the principal competing country.

4. Hemp cordage is made in various qualities and sizes. The bulk of domestic production is in the ¼-inch diameter and the $\frac{3}{16}$-inch diameter sizes. Although the average size of imported hemp cordage

is larger than that of domestic production, both are sold on a weight (pound) basis with only slight variations in the price per unit for the different sizes of the same quality. That the prices per unit of weight for hemp cordage of the same quality, but of different sizes, do not vary greatly results from the fact that the material cost per pound is the same for the different sizes and that other items of cost per pound of finished cordage decrease only slightly as the size becomes larger. As the cost differences for sizes ranging from ⅛-inch diameter to ¾-inch diameter are representative of the cost differences of all hemp cordage, the commission used these sizes in its cost comparison.

5. The bulk of the hemp cordage produced in the United States is made from yarns imported from Italy or from yarns spun in the United States from Italian hemp. The physical characteristics of Italian and domestic hemp cordage made from the same size of yarn and in the same diameter are, therefore, like or similar, since the formation of yarns into strands and of strands into cordage is accomplished through processes which are practically the same throughout the world. The imported cordage is accordingly like or similar to the domestic cordage.

6. New York, N. Y., and Seattle, Wash., are the principal markets for the purposes of this investigation.

7. The costs of production as defined in section 336 (h) (4) are not readily ascertainable in the principal competing country, and the commission, in accordance with section 336 (e) (2) (A) accepted the weighted average of invoice prices as evidence of such costs.

8. Costs of production ascertained in accordance with section 336:

(A) The weighted average cost of production in the United States of hemp cordage of the principal sizes was 35.1 cents per pound for the period covered by the investigation. The corresponding cost of production in the principal competing country, as evidenced by invoice prices, was 23.8 cents per pound.

(B) The weighted average cost of transportation and other charges incident to the delivery of hemp cordage from the centers of domestic production to the principal markets in the United States amounted to 0.1 cent per pound for 1930 and the corresponding cost from the centers of production in the principal competing country to the same markets was 4.2 cents per pound.

(C) No other relevant factors constituting an advantage or a disadvantage in competition were disclosed in the course of this investigation.

The total weighted cost of hemp cordage in the United States, including delivery to the principal markets, was thus 35.2 cents per pound; the corresponding cost of the foreign hemp cordage was 28 cents per pound; and the difference in such costs was 7.2 cents per pound.

CONCLUSION

The commission finds it shown by the investigation (a) that the duty of 3¼ cents per pound expressly fixed by statute on cordage, including cables, tarred or untarred, composed of three or more strands, each strand composed of two or more yarns, wholly or in chief value of hemp, does not equalize the difference in the costs of production, including transportation and delivery to the principal

markets in the United States, of the domestic article and the like or similar foreign article produced in the principal competing country; (b) that the difference in costs is such as to warrant an increase in the duty by the maximum amount permitted by the statute; namely, 1⅝ cents per pound; and (c) that the duty necessary to equalize the difference, within the limits permitted by the statute, is 4⅞ cents per pound.

Appended to this statement is a summary of information obtained in the investigation.

Respectfully submitted.

HENRY P. FLETCHER,
Chairman.
THOMAS WALKER PAGE,
Vice Chairman.
JOHN LEE COULTER,
ALFRED P. DENNIS,
EDGAR B. BROSSARD,
LINCOLN DIXON,
Commissioners.

SUMMARY OF INFORMATION OBTAINED IN THE COMMISSION'S INVESTIGATION WITH RESPECT TO HEMP CORDAGE

Rates of Duty.

The rates of duty on hemp cordage under the acts of 1922 and 1930 are shown in the following table.

Act and classification	Rates of duty		
	In the gray	Boiled	Bleached, dyed, or otherwise treated
Act of 1930: Cordage, including cables, tarred or untarred, composed of 3 or more strands, each strand composed of 2 or more yarns, wholly or in chief value of hemp.[1]	3¼ cents per pound [1]	3¼ cents per pound [1]	3¼ cents per pound.[1]
Act of 1922:			
Cordage, including cables, tarred or untarred, wholly or in chief value of hemp.[2]	2½ cents per pound [2]	2½ cents per pound [2]	2½ cents per pound.[2]
Cords, composed of 2 or more yarns, twisted together, the size of the single yarn of which is not finer than 11 lea.[2]	18¼ cents per pound, but not less than 30 per cent.[2]	20¼ cents per pound, but not less than 30 per cent.[2]	23¼ cents per pound, but not less than 30 per cent.[2]

[1] ⅛ inch or more in diameter.

[2] In April, 1924, a Treasury decision was rendered holding hemp cords less than ⅛ inch in diameter dutiable under paragraph 1004 of the tariff act of 1922; in December, 1927, the customs court held that hemp halibut fishing lines 9/32 inch and 4/16 inch in diameter were dutiable as cord under paragraph 1004 of the tariff act of 1922. This decision was affirmed by the Court of Customs and Patent Appeals. It is probable that these lines were previously dutiable as cordage under paragraph 1005, since they were larger than 3/16 inch in diameter and since 3/16 inch in diameter had been generally recognized as the dividing line between cords and cordage.

Tariff Considerations.

As indicated in footnote 2 of the foregoing table, certain decisions were rendered in April, 1924, and in December, 1927, which operated to definitely classify hemp halibut fishing lines $\frac{9}{32}$ inch and $\frac{4}{16}$ inch in diameter, and hemp cords less than ⅛ inch in diameter, under paragraph 1004 of the tariff act of 1922 at 23¼ cents per pound if tarred and at 18¼ cents per pound if in the gray. Prior to these

decisions $\frac{3}{16}$ inch in diameter had been specified by the courts as the dividing line between cords and cordage, and hemp cordage was provided for at 2½ cents per pound in paragraph 1005 of the tariff act of 1922.

The tariff act of 1930 specifically excludes from paragraph 1004 hemp cords composed of three or more strands, each strand composed of two or more yarns, ⅛ inch or more in diameter, and they are therefore dutiable at 3¼ cents per pound under the provisions of paragraph 1005 (a) (3) of that act. In other words, certain hemp cordage, including halibut fishing lines, which was dutiable at 18¼ cents per pound or at 23¼ cents per pound, according to its condition, under the above-mentioned decision, is dutiable at 3¼ cents per pound, regardless of its condition, under the provisions of paragraph 1005 (a) (3) of the tariff act of 1930.

A large proportion of the domestic production of halibut fishing line is manufactured from imported hemp yarn, which is dutiable at 35 per centum ad valorem. The specific equivalent of this ad valorem rate on yarn exceeds the specific rate on imported cordage made from comparable yarn.

Halibut fishing line is the principal item in domestic production of hemp cordage, and the domestic manufacturers of this type of hemp cordage applied for the investigation. The investigation was instituted to include all types of hemp cordage for the reason that halibut fishing line is not readily distinguishable from other types of hemp cordage of the same quality and size and made in the same way.

Scope of the Investigation.

The scope of the inquiry is indicated by the title. Costs of production of like or similar articles only are included in the cost comparisons shown herein. Some types or qualities of imported hemp cordage are not produced in the United States, and some types or qualities of hemp cordage produced in the United States are not imported.

Description and Uses of the Article.

Hemp cordage is used principally in the fishing industry. The next most important use is in the rigging of sailing vessels.

The total domestic consumption of cordage of all kinds (other than cotton) amounted to 171,694,172 pounds in 1929. Not more than one-half of 1 per cent of this quantity consisted of hemp cordage.

Domestic Production.

There are no official statistics of domestic production of hemp cordage; as indicated above, it is a minor item. The most reliable estimates place domestic production at approximately 600,000 pounds. More than one-half of the domestic production consists of halibut fishing lines, and the remainder is made up chiefly of bolt rope,[1] seizing,[2] ratline,[3] and deep-sea lines.[4]

Domestic production of halibut fishing lines increased largely after the decisions elsewhere referred to were rendered, holding such

---

[1] Bolt rope is used to line and reinforce the edges of sails and as purse lines in the fisheries.

[2] Seizing (or wormline) is used for filling in between the strands of large ropes, for whipping splices, etc.

[3] Ratline is used for ratlines (or cross ropes) on ships' shrouds but to a greater extent for heaving lines, in docking, and other operations.

[4] Deep-sea lines are used for sounding at sea and for signal halyards.

lines $\frac{9}{32}$ inch and $\frac{4}{16}$ inch in diameter dutiable under paragraph 1004 of the tariff act of 1922 at 23¼ cents per pound if tarred and at 18¼ cents per pound if in the gray.

Exports.

Exports of hemp cordage from the United States are not separately recorded in official statistics. There is no evidence of exports of such cordage, beyond a relatively small quantity of halibut fishing line exported to Canada.

Imports and Principal Competing Country.

Imports of hemp cordage into the United States for consumption have been decreasing for many years, and were less per year in quantity under the tariff act of 1922 than under previous acts. Official statistics follow.

Cables and cordage of hemp: Imports for consumption

Act of			Quantity	Value	Duty	Value per pound	Equivalent ad valorem rate
			Pounds				*Per cent*
1897	Cables and cordage of hemp, tarred or untarred	Annual average	402,225	$37,862	$8,045	$0.094	21.25
1909			435,922	47,148	8,718	.108	18.49
1913			368,541	71.283	1,563	.193	2.19
1922			254,178	67,977	6,355	.267	9.35
1930	Cordage, including cables, of hemp, tarred or untarred, composed of three or more strands, each strand composed of two or more yarns.[1]	June 18 to Dec. 31, 1930.	114,811	36,591	3,731	.319	10.20
		Jan. 1 to Mar. 31, 1931.	26,174	8,353	851	.319	10.18

[1] This classification does not materially affect the comparability of statistics.

Of the total imports of hemp cordage in 1930, 81 per cent of the quantity and 73 per cent of the value originated in Italy, and 86 per cent of the quantity and 89 per cent of the value of total imports in that year entered through New York City. Italy is the principal competing country.

Detailed statistics of imports for consumption of hemp cordage in 1929, 1930, and the first three months in 1931, by principal countries of origin and by customs districts, follow.

Hemp cordage: Imports for consumption, by countries of origin and by customs districts

Classification	1929 [1]		1930 [1]		Jan. 1 to Mar. 31, inclusive, 1931 [1]	
	Quantity	Value	Quantity	Value	Quantity	Value
By countries:	*Pounds*		*Pounds*		*Pounds*	
Italy	204,390	$54,159	181,972	$55,659	15,401	$3,864
United Kingdom	31,465	13,436	34,444	17,213	5,118	2,949
All other	33,641	7,209	8,035	3,236	5,655	1,540
Total	269,496	74,804	224,451	76,108	26,174	8,353
By customs districts:						
New York	230,447	64,697	192,786	67,557	11,155	4,444
Washington	8,741	4,234	19,755	6,014	8,900	2,303
All other	30,308	5,873	11,910	2,537	6,119	1,606
Total	269,496	74,804	224,451	76,108	26,174	8,353

[1] Classification: Jan. 1, 1929, to June 17, 1930, cordage, including cables, tarred or untarred, wholly or in chief value of hemp; June 18, 1930, to Mar. 31, 1931, cordage, including cables, tarred or untarred, composed of three or more strands, each strand composed of two or more yarns, wholly or in chief value of hemp. (See "Rates of duty.")

Markets.

New York City and Seattle, Wash., are the principal markets for the purposes of this investigation.

Costs of Production in the United States.

Data as to domestic costs of production in 1930 were obtained for 357,589 pounds of hemp cordage. This quantity represents 60 per cent of the estimated total domestic production.

The material cost per pound of finished hemp cordage of various sizes of the same quality is uniform, and constitutes almost three-fourths of the total cost. Labor cost constitutes only 12 per cent of the total cost. Furthermore, labor cost constitutes a smaller proportion of the total cost of large sizes than of small sizes.

Evidence of Costs of Production in Italy.

The commission accepted invoice prices of hemp cordage imported from Italy as evidence of costs of production in that country. The difference between domestic costs of production and foreign costs of production, as evidenced by invoice prices, of like or similar hemp cordage is such that the increase in the existing rate required to equalize such difference is more than the maximum amount permitted by statute.

Invoice prices and all charges incident to placing imported hemp cordage in the principal markets in the United States were obtained for 47,040 pounds of such cordage imported from Italy and entered at the ports of New York, N. Y., and Seattle, Wash., in 1930. This quantity constituted 22 per cent of the combined imports in the customs districts of New York and Washington in 1930.

The types of imported hemp cordage for which cost data were not obtained consist chiefly of high-grade specialty items, the selling price of which is relatively high (from $0.90 to $1.25 per pound), and a change in the rate of duty from 3¼ cents per pound to 4⅞ cents per pound would not greatly affect the price of such cordage.

Transportation and Other Delivery Charges.

Because of the high value of hemp cordage in relation to its weight, transportation does not constitute a large proportion of the total delivered cost.

The average transportation cost per pound of imported hemp cordage from the principal competing country to the port of arrival was found to be 3.8 cents per pound, and from the port of arrival to the principal markets in the United States, 0.4 cent per pound, making a total transportation cost from the principal competing country to the principal markets in the United States of 4.2 cents per pound. The average transportation cost per pound of domestic production to the principal markets was found to be 0.1 cent per pound.

The costs of transportation are computed on the basis of hemp halibut fishing line f. o. b. Seattle, Wash., and other hemp cordage f. o. b. New York, N. Y.

Cost Comparisons.

The findings of the commission are based upon a comparison of costs, including transportation and delivery charges to the principal markets in the United States. The hemp cordage covered by domestic costs is from ⅛ inch in diameter (approximately ⅖ inch circumference) to ¾ inch in diameter (approximately 2¼ inches

circumference). Invoice prices used as evidence of costs of production in the principal competing country cover like or similar hemp cordage.

The cost differences of hemp cordage for which costs were obtained are representative of the cost differences of all hemp cordage covered by the investigation.

The costs of production as determined by the commission for the comparable domestic and foreign articles are compared in the following table.

Hemp cordage: Comparison of domestic and foreign costs of production, including transportation and other expenses of delivery to the principal markets in the United States, 1930

	In cents per pound	
Domestic costs:		
Cost at factory—		
Material	25.4	----------
Labor	4.0	----------
Overhead and miscellaneous	4.9	----------
Interest on investment (imputed at 6 per cent)	.8	
		35.1
Transportation to principal markets	----------	.1
Total	----------	35.2
Foreign costs:		
Cost of production as evidenced by the weighted average of the invoice price	23.8	----------
Transportation and other expenses to port of importation	3.8	----------
Weighted average cost of transportation and delivery in the United States to the principal markets	.4	----------
Total	----------	28.0
Excess of domestic over foreign costs	----------	7.2
Rate of duty under act of 1930	----------	3.25
Increase required to equalize difference	----------	3.95
Maximum increase permissible under statute	----------	1.625
Maximum duty permissible under statute	----------	4.875

APPENDIX

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APPENDIX

INCREASING RATE OF DUTY ON HEMP CORDAGE

A PROCLAMATION

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

WHEREAS under and by virtue of section 336 of Title III, Part II, of the act of Congress approved June 17, 1930 (46 Stat. 701), entitled "An act to provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, to protect American labor, and for other purposes," the United States Tariff Commission has investigated the differences in costs of production of, and all other facts and conditions enumerated in said section with respect to cordage, including cables, tarred or untarred, composed of three or more strands, each strand composed of two or more yarns, wholly or in chief value of hemp, being wholly or in part the growth or product of the United States and of and with respect to a like or similar article wholly or in part the growth or product of the principal competing country;

WHEREAS in the course of said investigation a hearing was held, of which reasonable public notice was given and at which parties interested were given reasonable opportunity to be present, to produce evidence, and to be heard;

WHEREAS the commission has reported to the President the results of said investigation and its findings with respect to such differences in costs of production;

WHEREAS the commission has found it shown by said investigation that the principal competing country is Italy, and that the duties expressly fixed by statute do not equalize the difference in the costs of production of the domestic article and the like or similar foreign article when produced in said principal competing country, and has specified in its report the increase in the rate of duty expressly fixed by statute found by the commission to be shown by said investigation to be necessary to equalize such difference; and

WHEREAS in the judgment of the President such rate of duty is shown by such investigation of the Tariff Commission to be necessary to equalize such difference in costs of production;

NOW, THEREFORE, I, HERBERT HOOVER, President of the United States of America, do hereby approve and proclaim an increase in the rate of duty expressly fixed in paragraph 1005 (*a*) (3) of Title I of said act on cordage, including cables, tarred or untarred, composed of three or more strands, each strand composed of two or more yarns, wholly or in chief value of hemp, from 3¼ cents per pound

to 4⅞ cents per pound, the rate found to be shown by said investigation to be necessary (within the limit of total increase provided for in said act) to equalize such difference in costs of production.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the city of Washington this 24″ day of June, in the year of our Lord nineteen hundred and thirty-one, and of the Independence of the United States of America the one hundred and fifty-fifth.

[SEAL.] HERBERT HOOVER.

By the President:

HENRY L. STIMSON,
Secretary of State.

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UNITED STATES TARIFF COMMISSION

REPORT TO THE PRESIDENT
ON
HEMP CORDAGE

WITH APPENDIX
PROCLAMATION BY THE PRESIDENT

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